

## Language, Logic, and the Beginning of Human Being: Francis Collins' Fallacies

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**Abstract:** Via his popular books—*The Language of God* and *The Language of Life*—Francis Collins, the current director of U.S. National Institutes of Health, attempts to persuade the general public that the human embryo is not a human being and thus its destruction (in publicly-funded scientific research) is morally permissible. Collins, however, misuses language and misuses logic in his attempt to discern the beginning of human life. Because Collins' NIH is presently killing human embryos mistakenly thinking they are not human beings (and is at time of writing contemplating animal/ human cross-species research using human embryos mistakenly thinking they are not human beings), this paper endeavors to point up and correct Francis Collins' errors.

### Introduction

Francis Collins, M.D., Ph.D., is current director of the U.S. National Institutes of Health, former director of the Human Genome Research Institute, recipient of the U.S. National Medal of Science, plus author/co-author of the popular books *The Language of God*,<sup>1</sup> *The Language of Life*,<sup>2</sup> and *The Language of Science and Faith*.<sup>3</sup> Clearly, when it comes to science and medicine, Francis Collins demonstrates a high level of professional competence.<sup>4</sup> However, and sadly,

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<sup>1</sup> Francis S. Collins, *The Language of God: A Scientist Presents Evidence for Belief* (New York: Free Press, 2006).

<sup>2</sup> Francis S. Collins, *The Language of Life: DNA and the Revolution in Personalized Medicine* (New York: HarperCollins, 2010).

<sup>3</sup> Francis S. Collins & Karl W. Giberson, *The Language of Science and Faith: Straight Answers to Genuine Questions* (Downers Grove, Illinois: InterVarsity Press, 2011).

<sup>4</sup> Of course, some would disagree with Collins' arguments for his theistic evolutionary position. For example, see Paul Nelson, "No God-of-the-Gaps Allowed: Francis Collins and Theistic Evolution," *Christian Research Journal* 30:1 (2007): 50-51, and Jonathan Wells, "Darwin of the Gaps: Review of *The Language of God: A Scientist Presents Evidence for Belief* by Francis S. Collins," Discovery Institute Center for Science and Culture, March 26, 2008, <http://www.discovery.org/a/4529> [accessed August 13, 2016]. See, too, the various references to

when it comes to philosophical reasoning about the ethics of embryonic stem cell research, Dr. Collins steps outside his fields of expertise—and stumbles.<sup>5</sup> In his popular book *The Language of God*, Collins sets out three arguments that purport to show the general public that the destruction of human embryos for embryonic stem cell research is not morally problematic. Collins’ first two arguments attempt to show that the human embryo is not a human being and thus does not have the moral status of a human person. Collins’ third argument is an appeal to the practicality or utility of using human embryos left over from in vitro fertilization. These three arguments form a philosophical foundation for Collins’ subsequent book *The Language of Life*.

In *The Language of Life*, subtitled *DNA and the Revolution in Personalized Medicine*, Collins envisions a practice of medicine which involves human embryonic stem cell research, that is, research involving the destruction of human embryos—human beings. If recent news reports are accurate, human beings—which Collins mistakenly denies are in fact human beings—may now even become involved in animal/ human cross-species (“chimera”) research.<sup>6</sup>

I believe that human embryos are human beings and, because they are human beings, have the moral status of human persons. Consequently, Collins’ position on embryonic stem cell research troubles me. In this paper I do the following. First, to help understand Collins’ arguments, I set out some clarifications concerning embryonic stem cell research. Then I

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Collins in Jay Richards, editor, *God and Evolution* (Seattle, Washington: Discovery Institute Press, 2010). Also, see the various online criticisms of Collins and his BioLogos colleagues listed by Casey Luskin, “Historian of Science Michael Keas refutes the *Argumentum ad Francis Collins*,” *Evolution News and Views*, November 4, 2011, [http://www.evolutionnews.org/2011/11/historian\\_of\\_science\\_michael\\_k052561.html](http://www.evolutionnews.org/2011/11/historian_of_science_michael_k052561.html) [accessed August 13, 2016].

<sup>5</sup> To his credit, in the introduction to Francis Collins’ (fine) anthology *Belief: Readings on the Reason for Faith* (New York: HarperCollins, 2010), Collins admits “I am at best an amateur philosopher....”

<sup>6</sup> Mark Hodges, “Manimals: The next frontier in scientific research?” *LifeSiteNews*, August 9, 2016, <https://www.lifesitenews.com/news/the-next-frontier-in-scientific-research-could-be-here-manimals> [accessed August 13, 2016].

examine each of Collins' three arguments, which purport to show the general public that human embryonic stem cell research is not morally problematic; in addition, I show that each of these three arguments is fallacious.<sup>7</sup> It turns out that Collins misuses language and misuses logic in his attempt to discern the beginning of human life. I conclude that we should not succumb to Francis Collins' fallacies.

I should point out that what is original in this paper is not so much the philosophical insights that I set out, but rather the *application* of these insights to Collins' work. The philosophical insights to which I appeal come from some stellar contemporary philosophers as well as from a highly respected sociologist. Sadly, it seems that the fine philosophical work that's being done today isn't getting to those who need it most. To paraphrase C. S. Lewis's well-known quip, this paper is an attempt to respond to bad philosophy by dishing out some good philosophy.<sup>8</sup>

### **Clarifications**

With the help of Collins and others, I will set out some clarifications concerning embryonic stem cell research. These clarifications will be useful for understanding and assessing Collins' three arguments.

Embryonic stem cell research has to do with the study of embryonic stem cells. Embryonic stem cells are stem cells found in the human embryo, which is the first stage of human development. A stem cell, as Collins correctly points out, is "[a] type of cell with the potential to

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<sup>7</sup> As I will show, Collins commits two informal fallacies (language/conceptual problems) and one formal fallacy (logical form problem). Above I use the term "fallacious" broadly. I follow Simon Blackburn's definition of fallacy as "any error of reasoning." Simon Blackburn, "Fallacy," *Oxford Dictionary of Philosophy*, 3rd edition (Oxford & New York: Oxford University Press, 2016), 173.

<sup>8</sup> As C. S. Lewis points out, "Good philosophy must exist, if for no other reason, because bad philosophy needs to be answered." C. S. Lewis, *The Weight of Glory* (Grand Rapids, Michigan: Eerdmans, 1949), 50.

form many of the different cell types found in the body.”<sup>9</sup> According to science writer Laura Black, “[embryonic stem cells] are virtually ‘blank slates’ that can become any one of the 220 types of cells and tissue in the human body.”<sup>10</sup> Stem cells have the ability to transform into either more stem cells or other sorts of cells: either they renew themselves or they differentiate. Fertilization of the egg by the sperm results in the *zygote* (or zygote embryonic stage), which is a one-cell embryo.

Approximately five to seven days after fertilization, the human embryo develops into a *blastocyst* (or blastocyst embryonic stage), which consists of 50 to 250 cells. The blastocyst’s *inner cell mass* is chock full of stem cells that later become bone cells, muscle cells, nerve cells, brain cells, and so on. In other words, such stem cells are *pluripotent*. Pluripotency can be contrasted with *totipotency*. An example of a totipotent cell is the *zygote*, which can produce stem cells that can become all of the previously-mentioned types of cells plus produce the *trophoblast* cells, which are the outer cells of the blastocyst (which surround the inner cell mass) and enable the blastocyst to implant, that is., attach to the uterine wall, by forming the placenta (i.e., the organ that nourishes the fetus).

In contrast to *embryonic* stem cells there are *adult* stem cells, which are merely *multipotent*. Adult stem cells are found in various places in the body of the more mature human being, say, in bone marrow, the umbilical cord, and other body tissues, and they have, as Collins points out, a “more limited capacity...for self-renewal and differentiation.”<sup>11</sup> Collins adds, “In the lingo of the profession, pluripotency is much more powerful than multipotency. That’s why embryonic stem

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<sup>9</sup> Collins, *Language of Life*, 288.

<sup>10</sup> Laura Black, *The Stem Cell Debate: The Ethics and Science Behind the Research* (Berkeley Heights, New Jersey: Enslow, 2006), 16.

<sup>11</sup> Collins, *Language of Life*, 262.

cells are such a hot topic. Their almost unlimited potential for becoming any desired cell type has created a great deal of scientific interest.”<sup>12</sup>

The interest in embryonic stem cell research seems based on the promise of such research to provide cures for Parkinson’s disease, Alzheimer’s, multiple sclerosis, diabetes, lymphoma, spinal cord injury, and other medical problems. (This promise was made popular by Ron Reagan Jr., the son of former U.S. President Ronald Reagan, in a speech given at the U.S. 2004 Democratic National Convention.<sup>13</sup>) The idea is that when taken from the human embryo, embryonic stem cells can be placed near damaged cells of a particular type (e.g., damaged brain cells) and they can be “coaxed” to take on the form of undamaged cells of that type, thereby replacing the damaged cells and providing healing.

That embryonic stem cells have what Collins describes as an “almost unlimited potential for becoming any desired cell type” and that embryonic-stem-cell-related research will produce wonderful medical cures are yet to be shown. Instead, it very much seems that the promise and optimism have been overblown. In other words, as journalist Emily Yoffe puts it, there has been much “infomercial-level hype.”<sup>14</sup> As even pro-embryonic-stem-cell-research bioethicist Arthur Caplan points out, “Embryonic stem-cell research was completely overhyped, in terms of its promise.” Caplan adds, “And people knew it at the time.... The scientists had to have known

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<sup>12</sup> Collins, *Language of Life*, 262.

<sup>13</sup> A transcript of Ron Reagan’s 2004 Democratic Convention speech can be found at *New York Times*, July 27, 2004, <http://www.nytimes.com/2004/07/27/politics/campaign/ron-reagans-speech-to-the-democratic-national-convention.html? r=0> [accessed August 13, 2016].

<sup>14</sup> Emily Yoffe, “The Medical Revolution: What are the cures promised by stem cells, gene therapy, and the human genome?” *Slate*, Health and Science, August 24, 2010, [http://www.slate.com/articles/health\\_and\\_science/medical\\_examiner/2010/08/the\\_medical\\_revolution.html](http://www.slate.com/articles/health_and_science/medical_examiner/2010/08/the_medical_revolution.html) [accessed August 13, 2016].

that.”<sup>15</sup> In spite of the promises, thus far embryonic stem cell research has produced little success in terms of medical benefits.<sup>16</sup>

It should also be noted that there are alternatives to embryonic stem cell research, alternatives such as research into *adult stem cells* and *induced pluripotent stem cells* (iPS cells). Proponents of adult stem cell and iPS cell research point out that these alternatives, when compared with embryonic stem cell research, show not only much promise but also considerable success in medicine.<sup>17</sup> As mentioned, adult stem cells are stem cells derived from sources other than embryos, such as bone marrow and the umbilical cord. Other adult stem cell sources include gastrointestinal sources, skeletal muscles, the brain, hair follicles, and even fat. These are stem cells taken from the grown body’s own repair kit. In contrast, iPS cells are initially not stem cells. The production of iPS cells, as David Prentice reports, “involves adding 3-4 genes directly to a human cell such as a skin cell, reprogramming the cell such that it behaves like an embryonic stem cell, yet without use of production of an embryo, eggs, or cloning.”<sup>18</sup>

In spite of the alternatives, some people with great social influence—that is, people such as Francis Collins—want to pursue embryonic stem cell research (and use public funds to encourage

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<sup>15</sup> Arthur Caplan, Robert George, and Sherif Girgis, “Stem Cells: The Scientists Knew They Were Lying?” *Public Discourse*, Witherspoon Institute, April 13, 2011, <http://www.thepublicdiscourse.com/2011/04/2490> [accessed August 13, 2016].

<sup>16</sup> Yoffe, “The Medical Revolution.” David A. Prentice, “Written Testimony” for the Committee on Health and Aging, Ohio House, June 15, 2011. <http://downloads.frc.org/EF/EF11F38.pdf> [accessed August 13, 2016].

<sup>17</sup>What follows is from David A. Prentice. See David A. Prentice in “Stem Cell Research,” session 6 of Charles Colson and Nigel Cameron’s video series, *Playing God? Facing the Everyday Ethical Dilemmas of Biotechnology* (Loveland, Colorado: Group Publishing, 2004). See too David A. Prentice, “Written Testimony” for the Committee on Health and Aging, Ohio House, June 15, 2011, <http://downloads.frc.org/EF/EF11F38.pdf> [accessed August 13, 2016]. David A. Prentice, Ph.D., is Senior Fellow for Life Sciences, Family Research Council, and former Professor of Life Sciences at Indiana State University and Adjunct Professor of Medical and Molecular Genetics at Indiana University School of Medicine.

<sup>18</sup> Prentice, “Written Testimony,” 8.

such pursuit). In fact, as mentioned previously, in the final chapter of *Language of Life*, Collins sees the use of embryonic stem cells in scientific research as a major part of his “Vision for the Future.”<sup>19</sup> More recently, Collins has written, “hESCs [human embryonic stem cells] remain the scientific gold standard [for research].”<sup>20</sup>

Unhappily, doing research on embryonic stem cells involves a *huge* ethical problem. Embryonic stem cells are harvested from human embryos (usually produced via in vitro fertilization, a.k.a. IVF, i.e., the coming together of sperm and egg “in glass,” though, as we will see, they can be produced by cloning, too).<sup>21</sup> Harvesting the stem cells from human embryos requires the *destruction* of the human embryos. But human embryos are, as I (and others) believe, human beings.<sup>22</sup>

Significantly, the philosophical study of ethics teaches us the elementary truth that one’s end or goal does not justify any means. For example, at my school’s library, one goal of the head librarian is to have a quiet library, but she is not allowed to kill noisy students to achieve this goal, however quietly she may do the killing. The end or goal, say, curing someone from a disease, does not justify any means, especially not the killing of an innocent human being. Indeed, sacrificing offspring or children for the betterment of the parents or other adults is usually considered morally outrageous. Collins, however—and I firmly believe this—is *not* trying to be morally outrageous. I

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<sup>19</sup> Collins, *Language of Life*, 251ff. Chapter 10 of *Language of Life* is titled “A Vision for the Future.”

<sup>20</sup> Francis S. Collins & Mahendra S. Roa, “Steering a New Course for Stem Cell Research: NIH’s Intramural Center for Regenerative Medicine,” *Stem Cells Translational Medicine* 2012 (1): 15. <https://www.nih.gov/sites/default/files/about-nih/nih-director/articles/collins/steering-a-new-course.pdf> [accessed August 13, 2016].

<sup>21</sup> Another source is somatic cell nuclear transfer (SCNT), a.k.a. cloning. More on this later.

<sup>22</sup> Francis Beckwith, *Defending Life: A Moral and Legal Case Against Abortion* (Cambridge: Cambridge University Press, 2007); Robert P. George and Christopher Tollefsen, *Embryo: A Defense of Human Life* (New York: Random House/Doubleday, 2008); Scott B. Rae & D. Joy Riley, *Outside the Womb: Moral Guidance for Assisted Reproduction* (Chicago: Moody Publishers, 2011); Hendrik van der Breggen, *An Enquiry Concerning Human Abortion* (Peterborough, Ontario: Crown Publications, 1988).

take him to be a morally upstanding individual. So how does Collins justify his position?

Enter: Francis Collins' fallacies. Collins presents three arguments for thinking that the above ethical problem associated with embryonic stem cell research can be sidestepped. Collins sets out two arguments for thinking that the human embryo is not a human being, and he then sets out a third argument based on the practicality or utility of using human embryos in science. However, as I argue below, each of these arguments is fallacious.

At this juncture, it may be significant to note that Collins is a committed Christian,<sup>23</sup> so his theological position implies the sanctity of human life.<sup>24</sup> Given his theological view, and given his extensive medical work, Collins very apparently *does* value the life of human beings. Consequently and significantly, if Collins' arguments against the thesis that the human embryo is a human being—a human life—fail, it would seem to be clear that his position on embryonic stem cell research should be reversed. Or at least his position and his vision for future medical care should be put on hold until he finds other arguments for denying the humanity of the human embryo.

### **Collins' First Fallacy**

Collins' first argument for sidestepping the ethical problem at hand begins with a concession: "If one believes unequivocally that life begins at conception, and that human life is sacred from that very moment onward, then [deriving stem cells from a human embryo and thereby destroying the human embryo] would be an unacceptable form of research or medical

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<sup>23</sup> See Francis S. Collins, "From Atheism to Belief," in *Mere Christians: Inspiring Stories of Encounters with C. S. Lewis*, edited by Andrew Lazo & Mary Anne Phemister (Grand Rapids, Michigan: Baker, 2009), 78-81. See too Collins, "Introduction," *Belief*, xvi.

<sup>24</sup> The traditional biblical Christian view is that human beings are made in God's image and therefore have intrinsic moral worth; cf. Collins, "Introduction," *Belief*, xvi.

care.”<sup>25</sup> Nevertheless, according to Collins, this belief is unfounded. Why? Because, Collins argues (in 2006), “An embryo formed by the union of a human sperm and egg is a potential human life.”<sup>26</sup> Collins adds (in 2010), “I share the conviction that the product of sperm and egg is a potential human being...”<sup>27</sup>

According to Collins:

Scientists, philosophers, and theologians have debated for centuries the point at which life actually begins. Deriving more information about the actual anatomical and molecular steps involved in the early development of the human embryo has not really helped with those debates, as this is not really a scientific question.<sup>28</sup>

Collins adds:

From a biologist’s perspective, the steps that follow the union of sperm and egg occur in a highly predictable order, leading to increasing complexity, and with no sharp boundaries between phases. There is therefore no convenient biological dividing line between a human being and an embryonic form that might be called “not quite there yet.”<sup>29</sup>

Collins continues:

Some have argued that truly human existence cannot exist without a nervous system, so the fetal development of the “primitive streak” (the earliest anatomic precursor of the spinal cord, which generally appears at about day fifteen) could potentially be used as such a marker. Others argue that the potentiality of the embryo to develop a nervous system exists from the moment of conception, and it is not relevant whether or not that

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<sup>25</sup> Collins, *Language of God*, 249.

<sup>26</sup> Collins, *Language of God*, 249.

<sup>27</sup> Collins, *Language of Life*, 263. Also, per Collins: “It [the human embryo] is a potential human being.” *The Sage Encyclopedia of Stem Cell Research*, 2nd edition, ed. Eric E. Bouhassira (Thousand Oaks, California: Sage, 2015), 1362.

<sup>28</sup> Collins, *Language of God*, 249-250.

<sup>29</sup> Collins, *Language of God*, 250.

potentiality has actually been realized in the formation of any particular anatomic structure.<sup>30</sup>

Though Collins in this cursory way acknowledges what others have argued, his argument can be accurately summarized as follows: The human embryo that's formed by the union of a human sperm and egg is merely a potential human life, merely a potential human being. Moreover, because there is no convenient or sharp boundary between developmental stages subsequent to the zygote/blastocyst embryonic stage and this organism becoming a human being, we cannot really say where a potential life becomes an actual human being. But we can say that the earlier embryonic stages are not yet a human being and thus are fair game. So there is no moral problem in harvesting embryonic stem cells.

Did you spot the fallacy? Here it is: When Collins asserts that the fertilized egg is merely a potential human being, Collins confuses the language of *potential human being* with the language of *human being with potential*. Clearly, *if* an embryo is merely a potential human being, then its destruction is not a big deal morally. After all, a *potential* human being would not be an *actual* human being.

As Collins fails to notice, however his language fails to reflect the reality of what's going on. The result of the coming together of the human sperm and the human egg is a dynamic fusion that constitutes in itself a new, distinct human being. The fusion of the human sperm with the human egg is not a *potential* human being; rather, it is a *human being with potential*. The fusion of the human sperm with the human egg is the physical-spatial-temporal genesis of an actual human being that has the potential to become the subsequent developmental stages, which

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<sup>30</sup> Collins, *Language of God*, 250.

include the embryonic stages, fetus, pre-natal baby, post-natal baby, toddler, adolescent, adult, and senior.<sup>31</sup>

Let us be clear. At conception, the human sperm and the human egg unite and become in their union a *new* life form that is neither the sperm nor the egg. It is a *human* life form; it is not canine or reptilian or floral. Its parents are human and so it belongs to the biologically *human* category or kind. Moreover, the organism is a new *individual* human organism, a new human *entity*, a distinct human *being*. To use philosophical lingo, at conception there is a *substantial* change, a change of *substance*.<sup>32</sup> So, as Francis Beckwith points out, the label “fertilized ovum” is a misnomer, not an appropriate description.<sup>33</sup> The human sperm and the human egg *prior* to their union are what constitute a *potential human being*; the *union* of the human sperm and the human egg are what constitute a new substance, a new being—a new *human being with potential*.<sup>34</sup>

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<sup>31</sup> See Francis J. Beckwith, *Defending Life: A Moral and Legal Case Against Abortion Choice* (Cambridge & New York: Cambridge University Press, 2007), chapter 4; Robert P. George and Christopher Tollefsen, *Embryo: A Defense of Human Life* (New York: Random House/Doubleday, 2008), chapter 2; John Warwick Montgomery, “American Medical Association Symposium: When Does Life Begin?” in *Slaughter of the Innocents: Abortion, Birth Control and Divorce in Light of Science, Law and Theology* (Westchester, Illinois: Crossway, 1981), 69-77.

<sup>32</sup> For further discussion of the concept of substance, see Garrett J. DeWeese, *Doing Philosophy as a Christian* (Downers Grove, Illinois: InterVarsity Press, 2011), 144-148 & 234ff. See too Beckwith, *Defending Life*, 132-134, and Francis J. Beckwith, *Abortion and the Sanctity of Human Life* (Joplin, Missouri: College Press, 2000), chapter 5.

<sup>33</sup> Beckwith, *Abortion and the Sanctity of Human Life*, 22.

<sup>34</sup> Perhaps the oft-employed acorn-isn't-an-oak-tree argument will help to clarify the fallaciousness in Collins' argument. (This argument is oft-heard in the discussion of abortion as an argument in favor of abortion.) Here is the argument: An acorn isn't an oak tree, so the embryo isn't a human being, so abortion is no big deal. An acorn is a potential oak tree, so the embryo is a potential human being, so abortion is no big deal. Should we be persuaded by this argument? No. To compare an acorn to an embryo and an oak tree to a human being and then conclude that an embryo is not a human being is to draw a false conclusion from a faulty analogy. The unstated premise consists of the following comparison: acorns are to oak trees as embryos are to human beings. But this is problematic. To call an acorn an oak tree is, on a more accurately construed analogy, like calling an embryo an adult. Consequently, to say that an embryo is not a human being on the basis of an acorn not being an oak tree is to say an embryo is not a human being on the basis of an embryo not being an adult. This, of course, is absurd. In other words, the acorn-oak tree analogy confuses the concepts of *kind* and *developmental stage*. Yes, an acorn is not an oak tree; that is, a seed is not a grown tree. But we need to ask: What *kind* of seed is the acorn? Answer: Oak. The acorn is the first developmental stage of the oak. Subsequent developmental stages include sprout, sapling, and

In other words, as Robert P. George observes (in another context, addressing another thinker who takes a position similar to Collins), Collins

misses the point that there comes into being at conception not a mere clump of human cells but a distinct, unified, self-integrating organism, which develops itself, truly himself or herself, in accord with its own genetic “blueprint.”... What the zygote needs to function as a distinct self-integrating human organism, a human being, it already possesses. At no point in embryogenesis, therefore, does the distinct organism that came into being when it was conceived undergo what is technically called “substantial change” (or change of natures). It is human and will remain human.... The human zygote that actively develops itself is...a genetically complete organism directing its own integral organic functioning. As it matures, *in utero* and *ex utero*, it does not “become” a human being, for it is a human being *already*, albeit an immature human being, just as a newborn infant is an immature human being who will undergo quite dramatic growth and development over time.<sup>35</sup>

As Francis J. Beckwith points out,

The conceptus [zygote], like the infant, the child, and the adolescent, is a being who is in the process of unfolding its potential; that is, the potential to grow and develop itself but not to change what it is. The same human being that begins as a zygote continues to exist through its birth and adulthood. There is no decisive break in this physical organism’s continuous development from conception until death from which one can

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tree. Significantly, all the stages are of the oak kind or nature, and each individual oak is an oak entity—an oak being. Now consider the embryo. What *kind* of embryo are we talking about? Answer: Human. The embryo is an early developmental stage of the human kind. The first stage is the zygote and subsequent stages include the blastocyst, fetus, infant, toddler, teen, and adult. Significantly, all the stages are of the human kind, and each individual human is a human entity—a human being. An acorn is not an oak tree, so the embryo is not a human being, so the destruction of the embryo is no big deal? The logic of this argument is just plain nutty. (Sorry, I couldn’t resist the attempt at humor.) Is it a mistake to call an embryo a human being? No. What is a mistake is to think that only adults are human beings, which is what the faulty acorn-oak-tree analogy would require us to believe. The embryo is an individual human being, albeit at an immature stage.

Let us return to Collins. To confuse *human being with potential* with *potential human being* allows Collins to dismiss embryos as non-human beings because embryos are not later stages of development. This confusion allows Collins to dismiss acorns as non-oak entities because acorns are not oak trees. In embryonic stem cell research, this confusion allows for the destruction of a *human being with potential* because one mistakenly thinks it is merely a *potential human being*. This is a serious mistake.

The confusion between *human life with potential* and *potential human life* also occurs in the narration of the (otherwise excellent) National Geographic video *In the Womb*, written, produced, and directed by Toby Macdonald for the National Geographic Channel (Pioneer Film & TV Productions Limited, 2005).

<sup>35</sup> Robert P. George, “God’s Reasons: The role of religious authority in debates on public policy,” OrthodoxyToday.org: Commentary on social and moral issues of the day, <http://www.orthodoxytoday.org/articles/GeorgeGodsReasons.php#> [accessed August 13, 2016].

reasonably infer that the being undergoes a substantial change and literally ceases to exist and a new being comes into existence (like the substantial change that the sperm and ovum undergo when they cease to exist and a new being comes into existence).<sup>36</sup>

Beckwith also points out the following:

Because one can only develop certain functions by nature (i.e., the result of basic, intrinsic capacities) because of the sort of being one *is*, a human being, at every stage of her development[,] is *never* a potential person[/human being]; she is *always* a person [/human being] with potential even if that potential is never actualized....<sup>37</sup>

To say, as Collins does, that there is no biological dividing line between a human being and an embryo that is “not quite there yet” is to confuse developmental stage of human being with human being itself. The biological dividing line between (a) no human being and (b) human being is between (c) a sperm and an egg not coming together and (d) their coming together to form a new living substance. The only thing about an embryo that’s “not quite there yet” is the fact that it’s not quite a *subsequent stage* of human being. But a human being it *is*. If only Collins would have read the works of philosophers George and Beckwith!

At this juncture, it should be noted that another source of stem cells (besides IVF) is somatic cell nuclear transfer (SCNT), also known as cloning. In this case an egg is enucleated (i.e., its genetic component is removed) and the nucleus from a cell from the donor body, a cell other than from the egg or sperm (e.g., a skin cell) is transferred into the egg, which is then stimulated. The result is a clone of the individual from whom the nucleus was derived. So-called “therapeutic cloning” occurs when the cloned zygote is allowed to develop into the blastocyst stage and then harvested for stem cells from its inner cell mass. In such a process, the

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<sup>36</sup> Francis J. Beckwith, “What Does It Mean to Be Human?” *Christian Research Journal* 26:3 (2003), 16.

<sup>37</sup> Beckwith, *Defending Life*, 134.

clone is destroyed. “Reproductive cloning,” on the other hand, is exactly the same but the clone is allowed to live.<sup>38</sup> Collins thinks reproductive cloning is “highly unethical” for these reasons: it would be unsafe for the clone, it places a “burden of expectations” on the new clone, and “human reproduction should not deviate from the union of sperm and egg.”<sup>39</sup> Collins, however, thinks therapeutic cloning is acceptable. Collins writes:

But would the production of a human totipotent cell line by SCNT be itself unethical? After all, it is hard to attach moral significance to a skin cell, and it is also hard to see how a human egg cell with its nucleus removed, now simply a bag of cytoplasm, has moral standing. So how does the fusion of those two entities in the laboratory, a very unnatural event, acquire such [moral] status? If uterine implantation of such a cell line was absolutely prohibited, then many thoughtful observers, including religious believers like me, could defend human SCNT research.<sup>40</sup>

In reply to Collins, it should be noted that just as it is hard to attach moral significance to a human sperm and a human egg, the fact remains that, *when they unite*, they form a new entity, a new human being—a new human being with potential—and the human being has moral significance as such. Prior to fusion they are merely *potential* human life; at fusion they are *actual* human life—and they thereby enter into the new moral category that accompanies human life and being itself.

An appeal to the philosophical insights of sociologist Christian Smith may be helpful here. Smith ascribes what he (Smith) calls “proactive emergence” to the human being.<sup>41</sup> “With

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<sup>38</sup> For further descriptions of cloning, see: Prentice, “Written Testimony,” 3; Prentice, “Cloning,” session 5 of Colson and Cameron, *Playing God*; and Black, *Stem Cell Debate*, chapter 4; Collins, *Language of Life*, 262, figure 10.3 (keep in mind that on page 265 of *Language of Life* Collins denies that the result of SCNT is a human being that has moral significance).

<sup>39</sup> Collins, *Language of Life*, 265.

<sup>40</sup> Collins, *Language of Life*, 265-266.

<sup>41</sup> Christian Smith, *What Is a Person?* (Chicago & London: The University of Chicago Press, 2010), 86.

proactive emergence, the emergent entity itself involves some governing agency and power to cause the development and behavior of the relationally interacting parts on which the emergent entity is dependent for being.”<sup>42</sup> Smith considers a dog:

The dog’s bodily organism as a single whole is emergent from the relation of its various body parts and could not exist apart from them. But those body parts were developed and coordinated in the first place by the dog’s life organism. Before the parts ever existed, the dog existed at first as a single cell organism. And that organism contained within itself the capacity as a self-governing and self-developing agent of life, of its *own* life, to draw on nourishment, develop its parts, and coordinate them together in such a way as to produce emergently the normal, mature dog organism that it becomes. Dog ontology (real being) was the agent of dog ontogeny (organic development).<sup>43</sup>

Now think of Dolly, the sheep cloned from the nucleus from the cell of an adult sheep’s udder inserted into an enucleated sheep egg.<sup>44</sup> Sheep ontology (real being) was the agent of sheep ontogeny (organic development). Now think of humans. Human ontology (real being), like dog ontology and sheep ontology, is there right at the get-go when the sperm and egg become one, and this human being is the agent of human ontogeny, or human development. Now think of human SCNT. Again, human ontology (real being) is the agent of human ontogeny (organic development). Prior to the fusion of the enucleated egg and the nucleus of the skin cell there is

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<sup>42</sup> Smith, *What Is a Person?*, 86.

<sup>43</sup> Smith, *What Is a Person?*, 86-87. Smith contrasts proactive emergence with *responsive emergence*. “With responsive emergence, by comparison, some agent other than the emergent entity causes parts to interact relationally, which then constitutes the emergent entity. A simple example of *responsive* emergence is Monet’s painting [*Water Lilies (The Clouds)*]. The painting’s picture is an emergent reality consisting of more than the sum of its paint-dab parts and possessing causal powers to effect changes in those who view it, such as feelings of serenity. But the emergent picture was not the agent that caused the dabs of paint to create the painting. Monet was the agent. The picture exists through emergence because another agent, Monet, arranged dabs of paint that relate in such a way to produce an emergent picture that he knew would be perceived in a certain way by the viewer. Emergence, using my term, is responsive insofar as it exists as a response to the operations achieved by another’s agency. In short, responsively emergent entities are the *objects* of emergent processes and outcomes caused and guided by another agent or force.” (Smith, *What Is a Person?*, 86.)

<sup>44</sup> Dolly was cloned in 1997 by the Scottish scientist Ian Wilmut, Ian Wilmut et al., “Viable offspring derived from fetal and adult mammalian cells,” *Nature* 385:6619 (February 1997): 810-813.

mere potential human being. After fusion (i.e., after the donor nucleus is inserted into the egg), there is the *same result* as a fertilized egg—a dynamic fusion that is the physical-spatial-temporal genesis of a new living organism, a new substance, a new zygote, a new individual human being, a new human being that has the potential to become all its subsequent stages. In other words, Collins’ earlier confusion between *potential human being* and *human being with potential* allows Collins mistakenly to dismiss moral concerns having to do with stem cell research on cloned human beings.

In addition, it should be noted that once the distinction between potential human being and human being with potential is in place, the distinction between reproductive cloning and so-called “therapeutic” cloning collapses: it is *all* reproductive cloning—all SCNT is the *reproduction of a human being*.

Add to this yet another insight from Smith. Smith points out that *human personhood*, a concept in which he includes human dignity and intrinsic moral worth, is also an emergent property of the human being per se. At the beginning, when there is a human being, there is also human dignity and moral worth, just as wetness is there right from the start when hydrogen and oxygen unite.<sup>45</sup> If human beings are persons, i.e., have dignity or real objective moral worth—and equally so—then human beings, regardless of their origin, i.e., regardless of whether they come to be via sexual means or SCNT, have such worth and should not be destroyed.

This is especially significant (or should be especially significant) for Collins. He professes to be a Christian who holds that human beings are made in God’s image, and thus Collins is committed (or should be committed) to the equal dignity and worth of all human beings. Therefore, because embryonic stem cell research involves the destruction of human

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<sup>45</sup> Smith, *What Is a Person?*, 457.

beings—whether these embryonic human beings originate from the fusion of sperm and egg or the fusion involved in SCNT—Collins should reject embryonic stem cell research.<sup>46</sup>

The human embryo is *not* a potential human being; the human embryo is a human being with potential.

### Collins' Second Fallacy

Collins attempts to buttress his fallacious argument that the human embryo is merely a potential human being (instead of a human being with potential) by setting out an appeal to twinning. Collins writes:

Interesting light has been shed on this issue [i.e., the beginning of human life and human being] from the existence of identical twins, who develop from a single fertilized egg. Very early in development (presumably at the two-cell stage), the embryo comes apart, resulting in two distinct embryos with identical DNA sequences. No theologian would argue that identical twins lack souls, or that they share a single soul. In these cases,

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<sup>46</sup> Secular arguments can be presented for the reality and our recognition of objective moral worth of human beings. Smith writes: “What is it that most powerfully justifies moral commitments to things such as human rights, freedom of speech, the abolition of slavery, religious liberty, universal education, due process, racial nondiscrimination, the prohibition of torture and genocide, outrage against rape, the freedom of conscience, protections against starvation, and care for refugees? Not a utilitarian calculation. Not a social contract. Not the interests of the wealthy and powerful. Not the findings of naturalistic, positivistic, empiricist social science. What justifies these moral commitments is the recognition of the natural dignity of persons, which is ontologically real, analytically irreducible, and phenomenologically apparent. In naming the real about humans in this way we continue to pull back together fact and value, the *is* and the *ought*” (Smith, *What Is a Person?*, 442-443). For more detailed arguments for the existence of and our recognition of the objective moral value of human beings, see chapter 2 of Hendrik van der Breggen, “Miracle Reports, Moral Philosophy, and Contemporary Science” (Ph.D. dissertation, University of Waterloo, 2004), and see Paul Chamberlain, *Can We Be Good without God? A Conversation about Truth, Culture, and a Few Other Things that Matter* (Downers Grove, Illinois: InterVarsity Press, 1996).

Also, for moral equality to hold for human beings in general requires moral worth to be grounded in human being itself. As Scott Klusendorf argues, “[O]ur value as human beings is grounded in our common human nature that gives rise to certain capacities in the first place. Even if we fail to express these capacities fully, we remain valuable because of the kind of thing we are. If you deny this, it’s difficult to say why human equality applies to anyone.” (Scott Klusendorf, *The Case for Life* [Wheaton, Illinois: Crossway Books, 2009], 61.)

If Collins takes what Rae calls a “decisive moments” approach to determining when human beings have worth (a decisive moment other than conception), then Collins falls prey to ruling as worthless or less worthy some cases of what are clearly human beings who have objective moral worth. If brain function is the decisive moment, then the unconscious are not persons. If size is the decisive moment, then the shorter among us are less human than others. If biological independence is the decisive moment, then those who are dependent on dialysis machines lose out. If movement is the decisive moment, then paralyzed people are not persons or are lesser persons. And so on. Decisive moments approaches founder on the reality of equal moral worth.

therefore, the insistence that the spiritual nature of a person is uniquely defined at the very moment of conception encounters a difficulty.<sup>47</sup>

And so, or so Collins implies, the zygote/ early embryo is not a human being—and thus is fair game for embryonic stem cell research.

In reply, three preliminary points should be noted immediately. First, it should be noted that before theological or even moral categories are applied, biological clarity should be sought. That is, before we decide whether a human being has a soul or spirit, or belongs to a morally relevant category, we should determine whether the object in question is in fact a human being. The moral principle—“Do not murder”—applies to human beings (who have not forfeited their right to life by doing something wrong). If the object in question is not a human being, then the principle does not apply. So the crucial question is: What is it? In the case of twinning: What is the thing that sometimes twins? Second, it should be noted that if the question of whether the pre-twinning entity has a soul or not hasn’t been answered, it would seem better to err on the side of caution.<sup>48</sup> Third, it should be noted that twinning does not occur in the vast majority of cases in which the egg and sperm unite. As Edwin C. Hui points out, “[I]n reality, monozygotic twinning is essentially rare, occurring in only three or four out of a thousand births.”<sup>49</sup> So even if twinning casts doubt on *some* cases, the fact remains that this doubt does not transfer to *all* cases.

Let’s get back to Collins’s twinning objection. Before proceeding to critique it, Ramesh Ponnuru helpfully sets out the Collins-type objection as follows: “The early human embryo isn’t

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<sup>47</sup> Collins, *Language of God*, 250.

<sup>48</sup> On the question of soul, see J. P. Moreland & Scott B. Rae, *Body and Soul: Human Nature and the Crisis in Ethics* (Downers Grove, Illinois: InterVarsity Press, 2000).

<sup>49</sup> Edwin C. Hui, *At the Beginning of Life: Dilemmas in Theological Bioethics* (Downers Grove, Illinois: InterVarsity Press, 2002), 69.

a human being because it could still split into twins. Because there could be two individuals there, there are really none.”<sup>50</sup> In reply, Ponnuru argues as follows:

This is like saying that a flatworm isn’t a flatworm because it can be split into two flatworms. It may be helpful to think about the developing science of cloning, which uses cells taken from organisms, such as sheep, along with other biological material [i.e., enucleated egg] to create new organisms that are genetic replicas of the originals. One day it may well be possible to do this for human beings, and it will therefore be possible to create a kind of twin for each of us. It will not follow that none of us has a right to life.<sup>51</sup>

In other words, it will not follow that none of us are human beings. As Scott B. Rae points out, “just because twinning occurs...it does not follow that the original embryo was not fully a [human being] before the split.”<sup>52</sup> Scott Klusendorf helpfully observes:

[T]winning is a mystery. We don’t know if the original entity dies and gives rise to two new organisms or if the original survives and simply engages in some kind of asexual reproduction. Either way, this does nothing to call into question the existence of a distinct human organism prior to splitting.<sup>53</sup>

To be sure, from the fact that twinning occurs it does not follow logically or conceptually that what twins is not a distinct human organism. But are the cells prior to splitting *in fact* a distinct human organism, a human being, or are they merely a clump of cells, namely, cells that adhere to each other but are otherwise independent of one another? I have already argued that they are human beings in my previous appeals to George and Beckwith. Nevertheless, George

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<sup>50</sup> Ramesh Ponnuru, “The Secular Case Against Abortion: Reason, Religion, and the Sanctity of Life – Part 2: Answering Objections,” *Tothesource*, May 21, 2010.

<sup>51</sup> Ponnuru, “The Secular Case Against Abortion.” On Ponnuru’s flatworm example, see Patrick Lee, *Abortion and the Unborn Human Life* (Washington, DC: The Catholic University of America Press, 1996), 93. See too Beckwith, *Defending Life*, 79.

<sup>52</sup> Scott B. Rae, *Moral Choices: An Introduction to Ethics*, 3rd edition (Grand Rapids, Michigan: Zondervan, 2009), 141.

<sup>53</sup> Klusendorf, *Case for Life*, 40.

and Christopher Tollefsen argue further here, so, for the sake of thoroughness and to buttress my previous arguments, I appeal to some insights from George and Tollefsen:

It is this alleged independence that we believe is the real issue. For this is a question of biology: Does the biological evidence indicate a mass of merely adhering cells, or a unified entity? This biological question must be distinguished from a conceptual question about individuals: Can something that is genuinely one entity split so as to become two? Or must any entity that can do this be something other than one to begin with?<sup>54</sup>

The flatworm example answers the *conceptual* question. Thus, George and Tollefsen go on to argue that the evidence of science answers the *biological* question. According to George and Tollefsen, evidence shows that there is a “coordination of tasks among the cells” and that there is an appearance of “communication among cells” (the occurrence of coordination and communication is clear because there is a regulatory function in the organism in question whereby the individual cells respond to the environment in terms of the needs of the whole or group).<sup>55</sup> In other words, the organism seems to have “goals.”<sup>56</sup>

The evidence suggests, then, that at the end of the first week, the same organism that came into being at fertilization has continued to grow and pursue its important biological goals. It does this by means of an increasingly differentiated division of labor among the cells, but a division whose original plan dates back to the very act of fertilization. And it pursues its goals, and adjusts for difficulties, by means of communication from cell to cell. It is, it would seem, a single organism, just like a toddler, adolescent, or adult [is a single organism].<sup>57</sup>

But, as George and Tollefsen argue, there is more.

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<sup>54</sup> George and Tollefsen, *Embryo*, 150. Cf. Beckwith, *Defending Life*, 80-81.

<sup>55</sup> George and Tollefsen, *Embryo*, 155-156.

<sup>56</sup> George and Tollefsen, *Embryo*, 151.

<sup>57</sup> George and Tollefsen, *Embryo*, 156.

[T]he clearest evidence that the embryo in the first two weeks is not a mere mass of cells but is a unitary organism is this: if the individual cells within the embryo before twinning were independent of the others, *there would be no reason that each would not regularly develop on its own*. Instead, these allegedly independent, noncommunicating cells regularly function together to develop into a single, more mature member of the human species. This fact shows that interaction is taking place between the cells from the very beginning (even within the *zona pellucida*, before implantation), restraining them from individually developing as whole organisms and directing each of them to function as a relevant part of a single, whole organism that is continuous with the zygote.<sup>58</sup>

Thus, prior to an extrinsic division of the cells of the embryo [i.e., prior to twinning], these cells together do constitute a single organism. So the fact of twinning does not show that the embryo is a mere incidental mass of cells.... Rather, the evidence clearly indicates that the human embryo, from the zygote stage forward, is a unitary human organism.<sup>59</sup>

The unitary human organism is a human being. In other words, according to John S. Feinberg and Paul D. Feinberg, “the change [in twinning] is one of *quantity*, not *quality*.”<sup>60</sup> The change in twinning is one of number, not substance. Prior to twinning, then, and contrary to what Collins would have us believe, the human embryo is a human being—a human being with potential.<sup>61</sup>

### **Collins’ Third Fallacy**

Collins next turns his gaze to in vitro fertilization (IVF) and the fact that IVF results in many leftover frozen embryos—embryos destined to be destroyed and thus are fair game for research. Collins points out, “In the United States alone there are hundreds of thousands of such

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<sup>58</sup> George and Tollefsen, *Embryo*, 156-157.

<sup>59</sup> George and Tollefsen, *Embryo*, 157.

<sup>60</sup> John S. Feinberg and Paul D. Feinberg, *Ethics for a Brave New World*, 2nd edition (Wheaton, Illinois: Crossway, 2010), 95.

<sup>61</sup> See too Robert P. George’s section “Twining and Implantation” in *Conscience and Its Enemies: Confronting the Dogmas of Liberal Secularism* (Wilmington, Delaware: ISI Books, 2013), 181-184.

frozen embryos currently stored in freezers, and that number continues to grow [because of IVF and its excess embryos].”<sup>62</sup> Collins adds, “While actual adoption of these embryos by other couples has resulted in a small number of them giving rise to pregnancies, there is no question that the vast majority of these embryos will ultimately be discarded.”<sup>63</sup> And, Collins argues, “A strict stance in opposition to the destruction of human embryos under any circumstance would appear, therefore, to require opposition to in vitro fertilization.”<sup>64</sup> Moreover, implanting all IVF embryos in doing IVF pregnancy will risk the death of the fetuses from multiple pregnancy.<sup>65</sup> But, according to Collins, IVF and its cost to human embryos seem to be justified by the “strong moral good” of satisfying a couple’s desire for a child, so “it [the moral good of IVF] challenges the principle that the inevitable destruction of human embryos should be avoided at all costs, no matter what the potential benefits.”<sup>66</sup> Collins concludes:

This circumstance raises the question being asked by many: if procedures could be set up to ensure that no in vitro fertilization procedure was ever undertaken with the explicit intent of generating embryos for research, and if medical research were then restricted only to those embryos that were left over after IVF and destined for destruction, would that be a moral violation?<sup>67</sup>

Collins seems to think that the answer is No.

The core of Collins’ argument can be stated as follows: Either we do research on IVF’s leftover human embryos or we discard them, so let’s do research on them.

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<sup>62</sup> Collins, *Language of God*, 251.

<sup>63</sup> Collins, *Language of God*, 251.

<sup>64</sup> Collins, *Language of God*, 251-252.

<sup>65</sup> Collins, *Language of God*, 252.

<sup>66</sup> Collins, *Language of God*, 252.

<sup>67</sup> Collins, *Language of God*, 252.

I submit that Collins' argument is a classic case of the fallacy of false dichotomy. The false dichotomy fallacy (a.k.a. false alternatives fallacy, or the either-or fallacy) is a mistake in reasoning that occurs when we assume that there are only two options, when there are actually more, yet we go on to conclude that because one of the options is problematic or false, the other option is the way to go.<sup>68</sup>

Collins is willing to do experiments on the human embryos—human beings—because, he argues, discarding them or putting them into the garbage would be such a waste. We are going to destroy them one way or the other, after all, so let's do it in such a way that increases our stock of knowledge—and thereby we can advance Collins' vision of future medicine, using embryonic stem cell research to promote the revolution of personalized medicine. Significantly, Collins downplays (and thereby neglects) considering a third, more ethical alternative: i.e., making the frozen embryos available for adoption and *promoting* such adoption.

It turns out that, as Collins is aware, such adoptions do occur. (Next time you're online, check out the webpage for Snowflakes Frozen Embryo Adoption and Donation, which is a part of Nightlight Christian Adoptions.<sup>69</sup>) Collins says that the number is “small” and so “there is no question that the vast majority of these embryos will ultimately be discarded.”<sup>70</sup> Yet this claim about there being “no question” is questionable. That the small number *must* remain small can be challenged, surely. It is not a necessary truth that the number must remain small. The

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<sup>68</sup> See: Trudy Govier, *A Practical Study of Argument*, 7th edition (Belmont, California: Wadsworth/Cengage Learning, 2010), 213, 251; and T. Edward Damer, *Attacking Faulty Reasoning: A Practical Guide to Fallacy-Free Arguments*, 5th edition (Belmont, California: Thomson Wadsworth, 2005), 126-127. Damer calls this mistake in reasoning the False Alternatives fallacy.

<sup>69</sup> Snowflakes Embryo Adoption and Donation: <http://www.nightlight.org/snowflakes-embryo-donation-adoption/> [accessed August 13, 2016].

<sup>70</sup> Collins, *Language of God*, 251.

Snowflakes Frozen Embryo Adoption program could be promoted so *more* human embryos will be adopted. Also, the Snowflakes Frozen Embryo Adoption program could replace IVF as the “strong moral good” of satisfying a couple’s desire for a child. Rae emphasizes the importance of adoption:

[Adoption fulfills] the biblical virtue of compassion for the most vulnerable. Adoption is the figure of speech used repeatedly in the Bible to describe the believer’s relationship to God (Eph. 1:5); and the virtue that indicates that a person’s faith is genuine is a willingness to care for widows and *orphans*, figurative of the most vulnerable in the society (James 1:27). Any view of procreation that downplays adoption as an alternative or even rules it out would appear to fall outside the biblical parameters. This would also include new ways of adopting children, such as adopting embryos that are left over from in vitro fertilization.<sup>71</sup>

Also, it helps to keep in mind that adoption is an *alternative* to IVF: IVF is not like adoption. As Nigel Cameron points out, “Adoption is a rescue operation for children already there, not a plan to create them.”<sup>72</sup> At the very least, Snowflakes Frozen Embryo Adoption could be emphasized and IVF downplayed.

In other words, the premise of Collins argument is false. It is false that either we do research on IVF’s leftover human embryos or we discard them because only so few are adopted. There is the option of *large numbers* of adoption. So it does not follow that we should do research on them. To think it does follow is to commit the false dichotomy fallacy.

### **Conclusion**

Francis Collins sets out three arguments that purport to show the general public that the destruction of human embryos for embryonic stem cell research is not morally problematic, but,

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<sup>71</sup> Rae, *Moral Choices*, 167; italics in original.

<sup>72</sup> Nigel M. De S. Cameron, “Session 10: In Vitro Fertilization,” in Charles Colson & Nigel M. De S. Cameron, *Playing God? Facing the Everyday Ethical Dilemmas of Biotechnology* (Loveland, Colorado: Group Publishing, 2004); VHS.

as I have argued (with much help from others), each of the three arguments fails. Collins' first two arguments purport to show that the human embryo is not a human being and thus does not have the moral status of a human person. The first argument is fallacious because of confusion between potential human being and human being with potential. The second argument is fallacious because twinning does not imply that the being twinned is not a human being. Collins' third argument appeals to the practical utility of using human embryos that will otherwise be destroyed. Collins' third argument fails because it commits the false dichotomy fallacy.

As mentioned in the introduction of this paper, Collins' three arguments form a philosophical foundation for Collins' vision for the future practice of medicine, which includes human embryonic stem cell research and its attendant destruction of human beings. Surely, in the name of the careful use of language and logic to discern the beginning of human life, and in the name of looking after the weakest and tiniest human beings on the planet, the least of the least of these, we should not succumb to Francis Collins' fallacies, and especially not, as the National Institutes of Health, of which Collins is director, considers animal/ human cross-species ("chimera") research.