

CRITIQUE OF MEDICAL PERSPECTIVE ON THE BEGINNING OF HUMAN PERSON BASED ON BIBLICAL AND BIOLOGICAL INSIGHTS

Ferriandis Harsono

| Graduate Student of Theology
Parahyangan Catholic University
Bandung, Indonesia

Abstract:

Many people and (Catholic) medical practitioners use or provide all kinds of contraceptives, including those that work by preventing implantation of zygote. Some medical experts affirm that preventing implantation of zygote is not an abortion because before the implantation, zygote is not considered as human person and does not have basic rights to live as human person. However, the Catholic Church affirms that human life must be respected and given the basic rights to live as human person since the conception. The difference between medical experts and the Catholic Church results from the different perspectives on the time of the beginning of human person. Both medical experts and the Catholic Church agree that human life begins at the time of conception, but they do not agree that human person begins at the time of conception. Many medical experts say that after the conception and before the implantation, zygote can split into identical twins so that human personhood cannot be determined before the implantation. In this article, the medical perspective will be criticized using biblical and biological insights. These insights may enlighten us that preventing an implantation of zygote is an abortion because zygote is already a human person.

Keywords:

beginning of human person • zygote • abortion • Catholic perspective • medical perspective • right to live

Introduction

The Catholic Church says that some contraception methods contain abortion component, but the majority of medical experts say that there is no abortion component in all contraception methods. The problem occurs because there are different perspectives between the Catholic Church and majority of medical experts about the time when human person begins to exist. Consequently, the understandings of abortion between the Catholic Church and medical experts are different. The difference of starting points of the beginning of human person between the Catholic Church and the medical experts causes different perspectives in seeing whether an action is deemed an abortion or not.

Medical Perspective: Human Person Begins after Implantation

There are some reasons behind the argumentation that individual human person begins after implantation (around 14 days after conception), and not at the time of conception. They are (1) high number of embryo loss prior to implantation,¹ (2) the phenomenon of monozygotic twins prior to implantation,² (3) the possibility of fusion or recombination of two or more zygotes into one zygote prior to implantation,³ (4) the appearance of primitive streak after implantation,⁴ (5) in vitro fertilization (IVF) experience that regards embryo as person after it is implanted in uterus,⁵ (6) relation with other person (mother) that occurs after implantation,⁶ (7) heterogenesis theory that zygote develops into many tissues (not only embryo) like placenta and umbilical cord.⁷

The majority of medical experts use the argumentation from the phenomenon of monozygotic twins to support their understanding that individual human person begins after implantation. This argumentation is the most plausible one since the phenomenon of monozygotic twins is a fact, and not a probability or speculation. From the phenomenon of monozygotic twins, they conclude that it is impossible for an individual human person to come to existence from the time of conception and prior to implantation (a process that occurs around two weeks after conception and after which twinning is not possible). They say that zygote and pre-

implantation embryo is genetically and biologically human and distinct from its parents, but it is not yet a distinct individual human person until after implantation, the event after which twinning is not possible. The embryo prior to implantation is just a colony of cells, each with the active potential and *totipotential* to become more than one individual human person.⁸

The word “individual” comes from the Latin word “in” (not) and “dividuum” (divided), so “individual” means “not divided or no division”. According to Grobstein, until 14 days after conception, an embryo can still undergo division to become monozygotic twins, but after 14 days (after implantation), an embryo can no longer undergo division to become monozygotic twins. Because an embryo before 14 days can still undergo division, it cannot be regarded as an individual human person. Only after 14 days (after implantation), after which division to become twins is not possible, an embryo can be regarded as individual human person.⁹

From the phenomenon of monozygotic twins, medical experts say that zygote has had a genetic identity, but has not had a personal identity. Monozygotic twins come from a single zygote with the same genetic identity, but eventually become two individual human persons with different personal identity. So, genetic identity is not the same as personal identity. In the case of monozygotic twins, at conception, zygote has only genetic identity as human, but does not have personal identity as distinct individual human person. Only after implantation (after which twinning is not possible), personal identity as distinct individual human person can be determined.¹⁰

Because individual human personhood cannot be determined before implantation, pre-implantation embryo does not have the right as human person, including the right to live. Because pre-implantation embryo is not regarded as individual human person with basic right to live, many medical experts do not consider every intervention that makes zygote die before implantation as an act of abortion. Therefore, contraceptives that work by preventing the implantation of zygote so that zygote will die are not deemed as abortion.

The Catholic Church's Perspective: Human Person Begins at Conception

The Catholic Church's understanding of the beginning of human person progresses from time to time. The progression can be seen in her teachings.

Gaudium et Spes (1965)

Gaudium et spes (GS) no. 14 says, "Though made of body and soul, man is one."¹¹ In this statement, the Catholic Church affirms that there is a unity of body and soul in human life. There is no human life that consists of only body or only soul. There must be body and soul in human life.

GS no. 51 says, "From the moment of its conception life must be guarded with the greatest care while abortion and infanticide are unspeakable crimes."¹² In this statement, the Catholic Church affirms that human life begins at the time of conception.

Declaration on Procured Abortion (1974)

Declaration on Procured Abortion (DPA) no. 12 says,

"In reality, respect for human life is called for from the time that the process of generation begins. From the time that the ovum is fertilized, a life is begun which is neither that of the father nor of the mother, it is rather the life of a new human being with his own growth. It would never be made human if it were not human already."¹³

DPA no. 13 says,

"To this perpetual evidence—perfectly independent of the discussions on the moment of animation—modern genetic science brings valuable confirmation. It has demonstrated that, from the first instant, there is established the program of what this living being will be: a man, this individual man with his characteristic aspects already well determined. Right from fertilization is begun the adventure of a human life, and each of its capacities requires time—a rather lengthy time—to find its place and to be in a position to act. The least that can be said is that present science, in its most evolved state, does not give any substantial support to those who defend abortion. Moreover, it is not up to biological sciences to make a definitive judgment on questions which are properly philosophical and moral such as the moment when a human person is constituted or the legitimacy of abortion. From a moral point of view this is certain: even if a doubt existed concerning whether the fruit of

conception is already a human person, it is objectively a grave sin to dare to risk murder. The one who will be a man is already one.”¹⁴

In the statements, the Catholic Church affirms that human life begins at the time of fertilization or conception, but the Catholic Church has not made a statement regarding the time of ensoulment or animation and whether the fruit of conception is already a human person.

Instruction on Respect for Human Life in Its Origin and on The Dignity of Procreation Replies to Certain Questions of The Day (1987)

The document is often called *Donum vitae* (DV). DV no. 3 says,

“Which moral criteria must be applied in order to clarify the problems posed today in the field of biomedicine? The answer to this question presupposes a proper idea of the nature of the human person in his bodily dimension. For it is only in keeping with his true nature that the human person can achieve self-realization as a “unified totality” and this nature is at the same time corporal and spiritual. By virtue of its substantial union with a spiritual soul, the human body cannot be considered as a mere complex of tissues, organs and functions, nor can it be evaluated in the same way as the body of animals; rather it is a constitutive part of the person who manifests and expresses himself through it. The natural moral law expresses and lays down the purposes, rights and duties which are based upon the bodily and spiritual nature of the human person.”¹⁵

In the statement, the Catholic Church affirms that human person is constituted by body and soul.

DV no. 4 says, “The inviolability of the innocent human being’s right to life from the moment of conception until death is a sign and requirement of the very inviolability of the person to whom the Creator has given the gift of life.”¹⁶ In this statement, the Catholic Church affirms the human life that comes into existence at conception is already a human person. The human person is constituted by body and soul since the time of conception.

DV no. 5 says,

“From the moment of conception, the life of every human being is to be respected in an absolute way because man is the only creature on earth that God has “wished for himself “ and the spiritual soul of each man is “*immediately created*” by God; his whole being bears the image of the Creator. Human life is sacred because from its beginning it involves “the creative action of God” and it remains forever in a special

relationship with the Creator, who is its sole end. God alone is the Lord of life from its beginning until its end: no one can, in any circumstance, claim for himself the right to destroy directly an innocent human being. Human procreation requires on the part of the spouses responsible collaboration with the fruitful love of God.”¹⁷

In this statement, the Catholic Church affirms that animation or ensoulment happens *immediately* at the time of conception. Human procreation is a cooperation between three partners, i.e., God, husband, and wife.

DV no. I, 1 says,

“This Congregation is aware of the current debates concerning the beginning of human life, concerning the individuality of the human being and concerning the identity of the human person. The Congregation recalls the teachings found in the Declaration on Procured Abortion...This teaching remains valid and is further confirmed, if confirmation were needed, by recent findings of human biological science which recognize that in the zygote resulting from fertilization the biological identity of a new human individual is already constituted. Certainly no experimental datum can be in itself sufficient to bring us to the recognition of a spiritual soul; nevertheless, the conclusions of science regarding the human embryo provide a valuable indication for discerning by the use of reason a personal presence at the moment of this first appearance of a human life: how could a human individual not be a human person?...Thus the fruit of human generation, from the first moment of its existence, that is to say from the moment the zygote has formed, demands the unconditional respect that is morally due to the human being in his bodily and spiritual totality. The human being is to be respected and treated as a person from the moment of conception; and therefore from that same moment his rights as a person must be recognized, among which in the first place is the inviolable right of every innocent human being to life.”¹⁸

Again, in the statement, the Catholic Church affirms that a human life that begins at the time of conception is already a human person. Even though no one can observe the coming of spiritual soul in any experiments, the Catholic Church affirms that human person begins at conception. Since human person consists of body and soul, the soul is present since the time of conception.

Evangelium Vitae (1995)

Evangelium vitae (EV) no. 60 says,

“The Church has always taught and continues to teach that the result of human procreation, from the first moment of its existence, must be guaranteed that unconditional respect which is morally due to the human being in his or her totality and unity as body and spirit: “The human being is to be respected and treated as a person from the moment of conception; and therefore from that same moment his rights as a person must be recognized, among which in the first place is the inviolable right of every innocent human being to life.””¹⁹

In this statement, the Catholic Church reaffirms that human person with his or her totality and unity of body and soul exists from the time of conception.

EV no. 58 says, “Procured abortion is the deliberate and direct killing, by whatever means it is carried out, of a human being in the initial phase of his or her existence, extending from conception to birth.”²⁰ In this statement, the Catholic Church affirms that every action that kills human being from conception to birth is deemed as abortion.

Charter for Healthcare Worker (1995)

Charter for Healthcare Worker (CHW) no. 35 says,

“Recent advances in human biology have come to prove that “in the zygote arising from fertilization, the biological identity of a new human individual is already present.” It is the individuality proper to an autonomous being, intrinsically determined, developing in gradual continuity. Biological individuality, and therefore the personal nature of the zygote is such from conception.”²¹

In this statement, the Catholic Church affirms that biological or genetic identity and personal identity begin at the same time, i.e., at the time of conception.

CHW no. 142 says, “The use of substances or means which impede the implantation of the fertilized embryo or which cause its premature detachment is also an act of abortion. A doctor who would knowingly prescribe or apply such substances or means would cooperate in the abortion.”²² In this statement, the Catholic Church affirms that contraceptives that work by preventing the implantation of zygote are considered an act of abortion.

Instruction Dignitas Personae on Certain Bioethical Questions (2008)

The document is often called *Dignitas personae* (DP). DP no. 1 says,

“The dignity of a person must be recognized in every human being from conception to natural death. This fundamental principle expresses a great “yes” to human life and must be at the center of ethical reflection on biomedical research, which has an ever greater importance in today’s world.”²³

DP no. 5 says,

“Indeed, the reality of the human being for the entire span of life, both before and after birth, does not allow us to posit either a change in nature or a gradation in moral value, since it possesses full anthropological and ethical status. The human embryo has, therefore, from the very beginning, the dignity proper to a person.”²⁴

In the statements, the Catholic Church reaffirms that human person begins at the time of conception. Therefore, zygote is already a human person.

Unlike the perspective of the medical experts that says biological/genetic identity begins at the time of conception but personal identity begins after implantation, the Catholic Church affirms that genetic identity and personal identity begin at the same time, i.e., at the time of conception. Human life begins at the time of conception and in human life, body is always united with soul, so zygote has body (genetic identity) and soul (personal identity). Ensoulment occurs at the time of fertilization. Since zygote has personal identity, aside from genetic identity, zygote is already a human person. Therefore, every intervention that prevents the implantation of zygote so that zygote will die, is an act of abortion.

The Beginning of Human Person Based on Biblical and Biological Insights

Discussions about the beginning of human person cannot rely on biological perspective alone because a human person consists of body and soul. We can examine the presence of body with our senses or our assisted senses (for example, eyes assisted by microscope). However, our senses or our assisted senses cannot grasp the presence of soul. Besides,

human is not created by human, but by God, so we have to consider the role of God in human creation. Until now, no one can fully understand human creation because human creation is beyond human intellect.

Because our senses cannot grasp the presence of soul and our intellect cannot fully understand human creation, we need help from the Bible to enlighten us in understanding the human creation (including the creation of soul) by God and the beginning of a human person. Since human person consists of body and soul, the insights from the Bible and from biology may complement each other in understanding human creation more comprehensively.

The creation of Adam and Eve in Genesis gives insight into how human person begins. Human creation is narrated in Genesis 1:27-28 and Genesis 2:7,21-25. Examining the biblical texts, we will see three types of human creation. The biblical insight will be supported by biological evidence.

First Type of Human Creation (Genesis 2:7)

Genesis 2:7 says, “Then Yahweh God formed man, dust drawn from the clay, and breathed into his nostrils a breath of life and man became alive with breath.”²⁵ It is the first type of human creation, that is, the creation of human from inanimate object. The term “dust drawn from the clay” has the same meaning as the term “soil”.²⁶ Soil is inanimate object. The term “breath of life” that comes from God’s breath can be interpreted as “soul”.²⁷ Soul comes from God and is created directly by God. Soul is animate or living. Soul is the cause that makes inanimate (non-living) soil turn into animate (living) soil or animate (living) human (“human” comes from the Latin word “humus” which means “soil”). Without the presence of and unity with soul, soil is forever inanimate. However, with the presence of and unity with soul, soil becomes animate (living soil or living human). It is a miracle beyond human capacity. It is the capacity of God, the Creator. This explanation is illustrated in Figure 1.

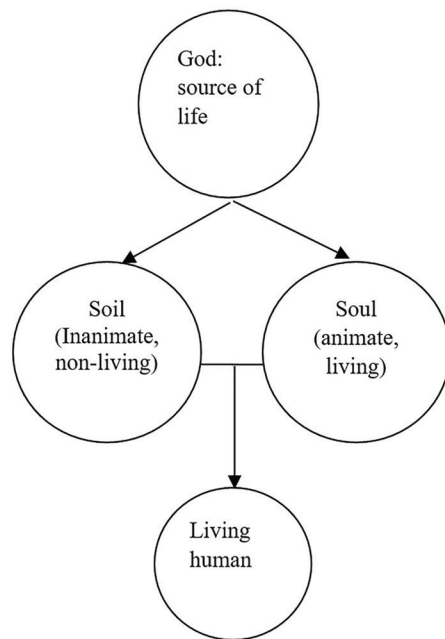


Figure 1. First type of human creation. In God's creating hand, the unity of soil and soul results in a living human

No human can create soul. Only God can create soul. Soil is material, but soul is immaterial. We can touch soil, but we cannot touch soul. If we see the process of human creation in Genesis 2:7 more carefully, we know that there are two steps in the process of human creation. The first step is that God forms a human out of the soil.²⁸ God turns soil into human body.²⁹ The first step is followed “immediately” by the second step.³⁰ The second step is that God gives breath of life (soul) to the man.³¹ The result of the first step is human body without soul, but God “immediately” gives breath of life (soul) to the human body in the second step so that the human starts breathing. No human can do these two steps. Only God, Creator can do these two steps. It is the miracle of God that is beyond human capacity.

Human body (formed out of soil) consists of genetic identity called DNA.³² The growth of human body is programmed by DNA. Human body is material part of human life. On the other hand, soul does not have genetic identity (DNA) and is not programmed by DNA. However, soul has personal identity coming directly from God because the soul is directly

created by God. Soul is immaterial part of human life. Since soul has personal identity coming directly from God, human body that is animated by soul is living human person and should be respected as human person. This explanation is illustrated in Figure 2.

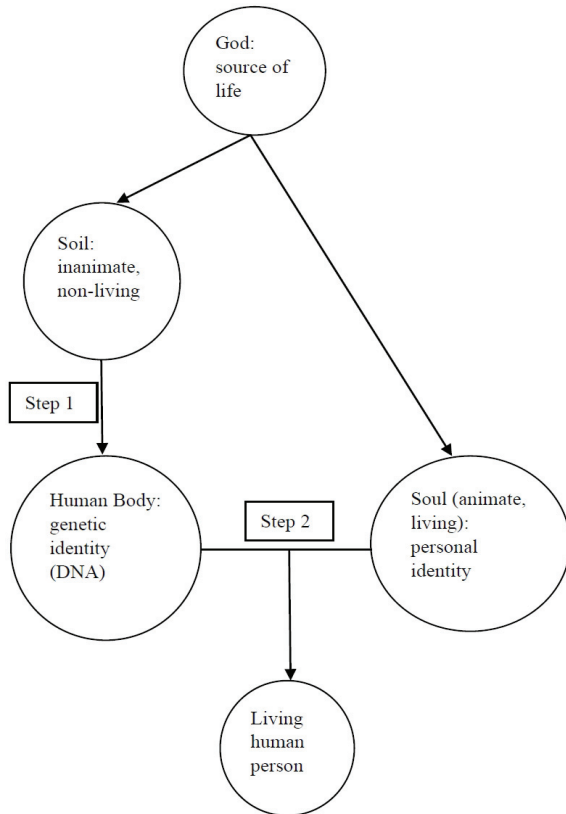


Figure 2. First type of human creation. In God’s creating hand, the unity of human body and soul results in living human person.

How do we know that there is a soul in the body? How do we know that soul has been united with body (*ensoulment*)? Equivalent to those questions is how do we know that the soul has departed from the body (*exsoulment*)?³³ Our senses or our assisted senses cannot grasp the presence of the soul. However, we can determine the presence of soul or the absence of soul indirectly by observing the biological signs of human life.

Genesis 2:7 says, “Then Yahweh God formed man, dust drawn from the clay, and breathed into his nostrils a breath of life and *man became alive*

*with breath.*³⁴ The contemporary English version of that script says, “The Lord God took a handful of soil and made a man. God breathed life into the man, and *the man started breathing.*” Here, Genesis 2:7 gives us insight that the presence of soul can be determined indirectly by observing the biological signs of human life. In Genesis 2:7, the biological sign of human life is “breathing”. Genesis 2:7 says that when soul is given to human, the human starts breathing. Initiation of breathing is the biological sign that can be seen when the soul has been united with body. Initiation of breathing is the biological sign of ensoulment. As long as human is still breathing, the soul is still united with the body. When human stops breathing, it means that soul has departed from body. The ceasing of breathing is the biological sign that can be seen when the soul has departed from body. The ceasing of breathing is the biological sign of *exsoulment*.

The presence of soul inside the body can be illustrated with an analogy of lamp and electricity. We can determine the presence of electricity in the lamp by observing the activity of the lamp. When we see that the lamp is on, we know that the lamp is connected to electricity. When we see that the lamp is off, we know that the lamp is disconnected from electricity. In this case, we cannot directly see the presence of electricity. However, we can indirectly determine the presence of electricity by observing the activity of lamp.

The analogy brings us closer to understanding of body and soul. We cannot see the soul directly with our senses, but we can determine the presence of soul inside body by observing the biological signs of human life. If human shows biological signs of life, it means that there is soul inside the body. However, if human does not show biological signs of life anymore, it means that the soul has departed from the body. This explanation is illustrated in Figure 3.

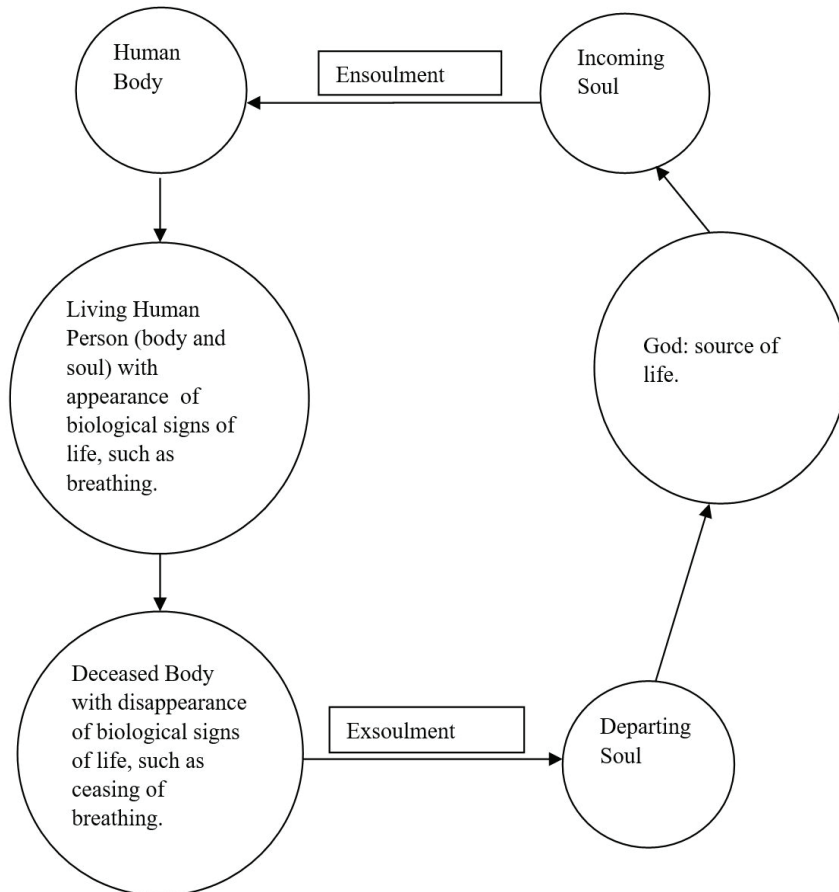


Figure 3. Human person shows biological signs of human life when body is united with soul

Genesis 2:7 mentions only breathing as a biological sign of human life. It is easy for us to see the breathing of a baby soon after he/she is delivered by his/her mother. However, it is very difficult for us to see the breathing of an embryo. Breathing is not the only biological sign of human life. There are other biological signs of human life aside from breathing.

Many biology scientists have proposed criteria of life, but so far there is no criteria of life that is accepted by all scientists. Among many scientists, Bennett and Mader propose the same criteria of life: it is organized, it has reproduction capacity, it grows and develops, it receives and uses energy, and it is responsive to environment. Aside from the criteria they agree on, Mader adds another criterion, i.e., it is homeostatic, and Bennett adds

that it can do evolutionary adaptation. Nowadays, many biology scientists say that the most important criteria of life are reproduction capacity and evolutionary adaptation.

Second Type of Human Creation (Genesis 2: 21-23)

Genesis 2: 21-23 says,

Then Yahweh God caused a deep sleep to come over man and he fell asleep. He took one of his ribs and filled its place with flesh. The rib which Yahweh God had taken from man He formed into a woman and brought her to the man. The man then said, "Now this is bone of my bone and flesh of my flesh. She shall be called woman because she was taken from man."³⁵

This is the second type of human creation. The key statement of the second type of human creation is "the rib which Yahweh God had taken from man He formed into a woman".³⁶ So, a woman does not come from soil, but from man's rib.

The second type of human creation also consists of two steps. The first step is that God creates the body of woman that consists of genetic identity. Unlike the first type of human creation, the human body of woman does not come from soil, but from the somatic (body) cell of man's rib. Like the first type of human creation, this first step is followed "immediately" by the second step, that is, God gives breath of life (soul) with personal identity to the woman so that the woman starts breathing.

Man's rib is human cell. Man's rib is somatic (body) cell with 46 chromosomes (diploid cell). In somatic cell, there are 22 pairs of matching chromosomes which are called autosomes, and one pair of sex chromosomes. If the sex pair is XX, the individual is genetically female, but if the sex pair is XY, the individual is genetically male.³⁷

The second type of human creation is a kind of asexual reproduction. It resembles asexual reproduction of some plants, for example, cassava plant. We can cut a slip of cassava stalk and plant it into the ground. After some days, there is a growth of roots and leaves. From a slip of cassava stalk, a new cassava plant arises with exactly the same genetic component (genotype) as its previous cassava plant.

It also resembles the cloning of animals. An example of the successful cloning of animal is the cloning of sheep Dolly, done by Ian Wilmut, a British scientist, in July 1996. It was an artificial mammal cloning using an adult cell as the source of the genotype.³⁸ From sheep Dolly's cell, with intervention in laboratory, new sheep arises with exactly the same genetic component (genotype) as its "parent".

So far, artificial human cloning has never been done. As if it were ever done, the outcome of human cloning must have the same genetic component (genotype) as his/her parent. If the parent is female, the outcome of human cloning must be female, too. If the parent is male, the outcome must be male, too.

In Genesis 2:22, we know that from a man's rib (somatic cell), God creates a woman. It is the biological laws of cloning. In cloning, the outcome must have the same genetic component (genotype) as his/her parent, including the same sex chromosomes. If his/her parent is female (sex chromosomes of XX), the outcome must be a female (sex chromosomes of XX), too; if his/her parent is male (sex chromosomes of XY), the outcome must be a male (sex chromosomes XY), too. However, here God creates a woman (Eve) with sex chromosomes of XX from man's rib (Adam's rib) with sex chromosomes of XY. God replaces the Y chromosome of Adam with X chromosome when creating Eve. It is the miracle of God that is beyond human capacity. From Genesis 2:22 we get insight that God can create human person using asexual reproduction. From somatic (body) cell, God creates new human person. This second type of human creation is illustrated in Figure 4.

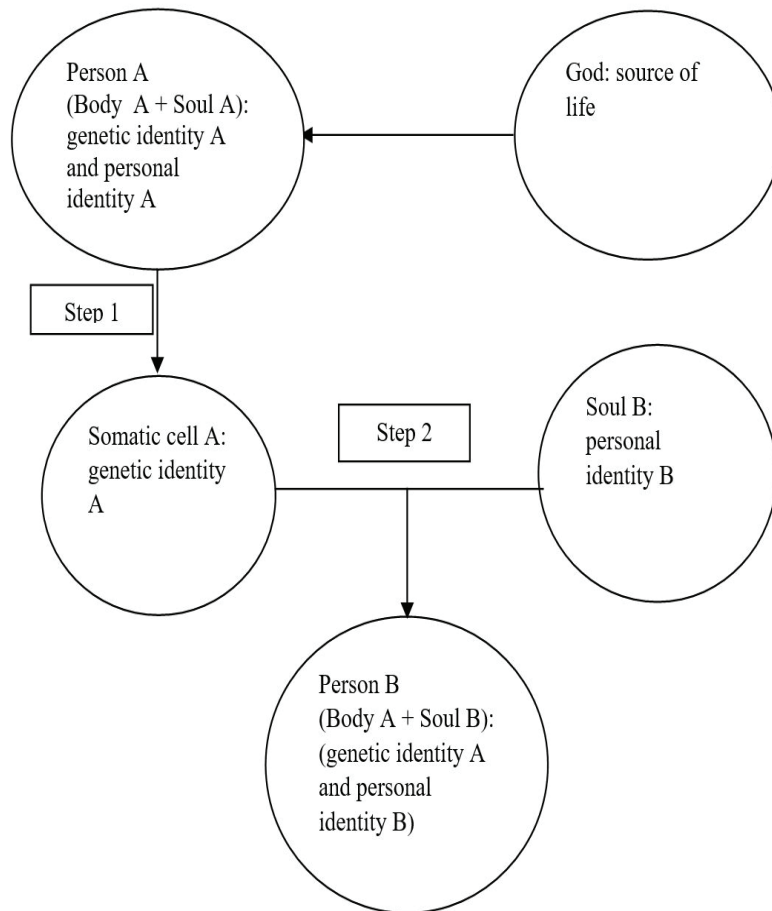


Figure 4. Second type of human creation. It is asexual reproduction in God's creating hand

Third Type of Human Creation (Genesis 1:27-28 and Genesis 2:24-25)

Genesis 1:27-28 says,

So God created man in his image; in the image of God He created him; male and female He created them. God blessed them and said to them, "Be fruitful and increase in number, fill the earth and subdue it, rule over the fish of the sea and the birds of the sky, over every living creature that moves on the ground."³⁹

Genesis 2:24-25 says, "That is why man leaves his father and mother and is attached to his wife, and with her becomes one flesh. Both the man and his wife were naked and were not ashamed."⁴⁰

This is the third type of human creation. From Genesis 1:27-28, we know that after God creates male person (Adam) and female person (Eve, Adam's wife), God asks them to have children. The way they can have children is explained in Genesis 2:24-25. To have children, man has to be united with his wife and become one flesh in a naked situation. The most intimate unity of man and his wife is sexual relationship.

Like the first and the second type of human creation, the third type of human creation also consists of two steps. The first step is forming the genetic identity of new offspring. Unlike in the first and second type of human creation whose first step is done by God, in the third type of human creation, the first step is done by male person (Adam) and female person (Eve) through sexual relationship. It is possible because God creates reproduction organ in man and his wife that can produce gamete cells, i.e., sperm in man and ovum in his wife. The fusion of sperm and ovum in conception generates new genetic identity in zygote that differs from the genetic identity of man and his wife. However, the fusion of sperm and ovum cannot generate soul that brings personal identity. Only God can create the soul that brings personal identity to new offspring. That is why, like in the first and second type of human creation, this first step is followed "immediately" by second step. The second step is that God gives breath of life (soul) with personal identity to zygote so that zygote starts "breathing". The term "breathing" here refers to biological signs of human life.

The third type of human creation is unique because it involves the participation of three partners: God, man (male), and his wife (female). In the third type of human creation, God asks for the participation of man and his wife to create new offspring. Man and his wife create the genetic identity of new offspring, whereas God creates the soul with personal identity for the new offspring.

Unlike the second type of human creation which is asexual reproduction, the third type of human creation is sexual reproduction. In the second type of human creation, God uses somatic cell of man's rib to form genetic identity of woman, but in the third type of human creation, genetic identity of new offspring is formed by the fusion of gamete cells (sperm and ovum).

Somatic cell has 46 chromosomes (diploid cell), but gamete cell has 23 chromosomes (haploid cell). Sperm has 23 chromosomes and ovum

has 23 chromosomes, too. To form the full genetic identity of human, the number of chromosomes must be 46. That is why, sperm and ovum must undergo fusion in conception to make the number of chromosomes complete (46 chromosomes).

The fusion of sperm and ovum results in one cell called zygote which has 46 chromosomes. Zygote has full genetic identity of new human being that differs from the genetic identity of his/her parents. This happens through sexual relationship between man and his wife. This is the role of man and his wife in human creation. On the other side, the role of God in human creation is to give breath of life (soul) with personal identity to the zygote. This explanation is illustrated in Figure 5.

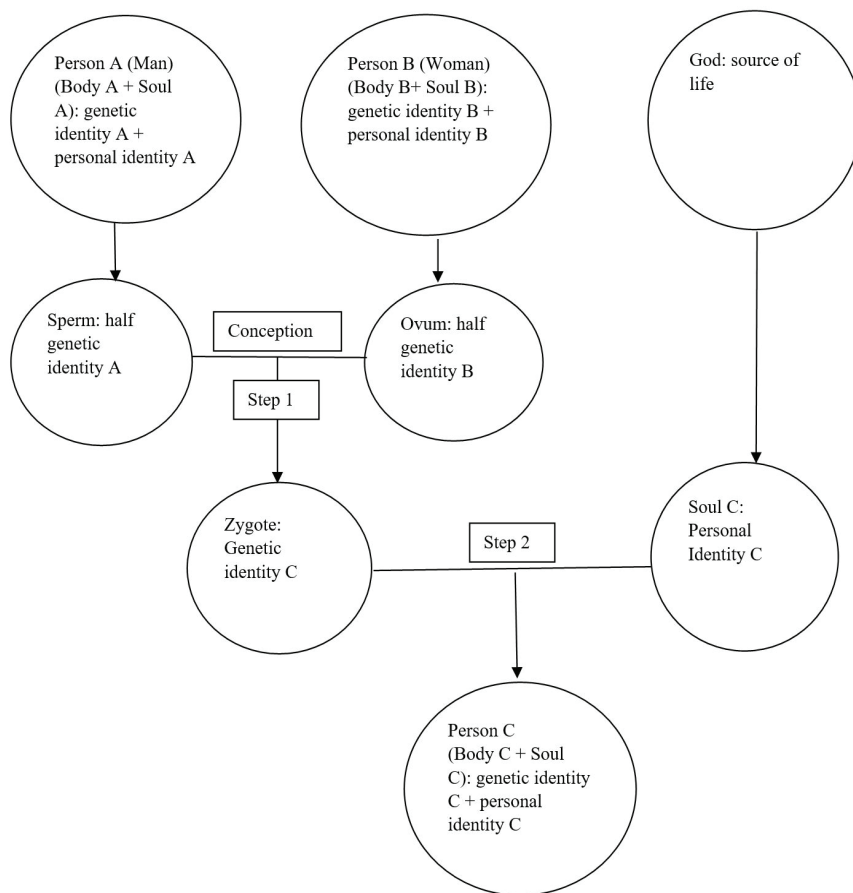


Figure 5. Third type of human creation. It is sexual reproduction in God's creating hand

Is it true that God gives soul to the zygote immediately? We cannot see the coming of soul into zygote (ensoulment) because our senses that are material in nature cannot grasp the soul that is immaterial in nature. However, as explained in the previous part, we can determine the presence of soul in body by observing the presence of biological signs of human life in the body. If there are biological signs of human life, we can conclude that there is soul in the body. Without the presence of soul in the body, the body will not show the biological signs of human life. It is easy to observe the biological signs of human life in the newborn, but it is difficult to observe the biological signs of human life in zygote. However, with the advance of biology, we can observe that zygote already shows the biological signs of human life.

Based on the criteria of life mentioned by Bennett and Mader, zygote has fulfilled the criteria of living organism. Zygote has very highly organized structure of DNA that will control the growth of cells to be a human, and not to be a monkey. Zygote also uses the energy stored in mitochondria so that zygote can grow, develop, do reproduction by division of cell, and move from fallopian tube to uterus. Zygote is also responsive to the environment, for example, zygote can have defect or even die if it is exposed to radiation.⁴¹ Based on the data, human embryologists affirm that human life begins when the conception process has been completed.⁴²

Many scientists agree that human life begins at the time of fertilization or conception. Keith L. Moore and T.V.N. Persaud, human embryologists, say that zygote is the result of fusion of sperm and ovum during fertilization and zygote is the beginning of new human life. Zygote is a very specialized *totipotential* cell who marks the beginning of all of us as unique individual.⁴³ Ronan O'Rahilly and Fabiola Mueller affirm that fertilization is a critical event because in normal situation, new and genetically distinct human organism is formed when chromosomes of male and female pronuclei fuse inside ovum.⁴⁴ William J. Larsen affirms that zygote is not only living organism, but also new individual.⁴⁵ Leon R. Kass, former chief of the President Council of Bioethics in the USA says that zygote and early stage of embryo is really alive because after fertilization has been completed, new individual with unique genetic identity comes into existence. He also says that all honest Biology scientists will be impressed by this fact and in the first impression they will certainly be inclined to say that human life begins

at the time of fertilization.⁴⁶ Among human embryologists themselves, there is no doubt that human life begins at the time of fertilization.⁴⁷

Some scientists even dare to affirm that fertilization is not only the beginning of new human life, but also new human individual. Scott F. Gilbert, a biology scientist, in his book *Developmental Biology*, says that fertilization is the process where two sex cells (gametes) fuse together to form new human individual whose genetic potential comes from both parents.⁴⁸ Ian Wilmut, the director of the cloning of sheep Dolly says that in sexual reproduction, female gamete fuses with male gamete in fertilization to form diploid cell and this diploid cell is really a new individual.⁴⁹

All of the above evidence shows that zygote has already had biological signs of human life. The cause of the presence of biological signs of human life in zygote is the presence of soul in zygote. The fertilization process will not form the soul. It just forms the zygote that is material. However, soul is immaterial. Soul is directly created by God. The presence of biological signs of human life in zygote is a sign that there is soul in zygote. This can happen so because God immediately gives breath of life (soul) to the zygote.

Nicanor Pier Austriaco, OP, says that fertilization is the paradigmatic example of cell-to-organism transition. Ovum is a cell that is not self-sustaining because if it is not fertilized, it will die after around 24 hours. However, after fertilization, the fertilized ovum (zygote) is not a cell anymore, but is an organism that has the ability to sustain itself as an independent entity.⁵⁰

Due to the transition from cell to organism, zygote has different character compared to somatic cell and gamete cell. Kusmaryanto says that zygote is different from somatic cell and gamete cell (ovum or sperm) although they are all cells with human genetic identity. Somatic cell and gamete cell do not have actual capacity to become human, but zygote has actual capacity to become human.⁵¹ Skin cell (somatic cell) will replicate its cell to form other skin cells and never become a human; skin cell will die as skin cell. Ovum (gamete cell) will not replicate its cell to form other ova and never become a human if it is not fertilized by sperm; ovum will die as an ovum. Sperm (gamete cell) will not replicate its cell to form other sperms and never become a human if it does not fuse with ovum;

sperm will die as a sperm. However, the fertilized ovum (zygote) will not replicate its cell to form other zygotes and will not die as zygote. Zygote will replicate its cell to form all organ systems (like hematologic, neurologic, endocrine, respiratory, and urologic system) of human being. If there is no inhibition to the growth of zygote, zygote will develop into mature human being and will die as human being.⁵²

The statement "fertilization is the paradigmatic example of cell-to-organism transition" is true biological evidence, but the statement is not complete because it just touches one aspect of human life, that is, biological life or body. It does not touch the soul as integral part of human life. Human life is a unity of body and soul.

The statement can be completed by saying "In fertilization, there is a transition from human cell to human person". Human person consists of body and soul. As we have seen, zygote has biological signs of human life, and they are present due to the presence of soul in zygote. So, zygote does not have only body, but also soul. Zygote does not have only genetic identity, but also personal identity. Zygote is not just human organism, but zygote is really human person. So, in fertilization, there is a dramatic change of nature: from human cell to human person.

We have seen the three types of human creation. The summary and comparison of the three types of human creation are seen in Table 1.

| Aspect | Type I | Type II | Type III |
|---|---------------------------------------|----------------------|---|
| The actor | Only God | Only God | God with participation of humans (man and his wife) |
| Material of body (genetic identity) | soil | Somatic cell | Male gamete (sperm) and female gamete (ovum) |
| Immaterial aspect (personal identity) | Soul (breath of life coming from God) | Soul | Soul |
| Type of reproduction (the creation of human from human) | No reproduction | Asexual reproduction | Sexual reproduction |

Table 1. Three Types of Human Creation

Monozygotic Twins in Light of Biblical and Biological Insights

In light of biblical and biological insights, monozygotic twins are combination of type II and type III human creation. The first twin comes into existence by type III human creation, that is, sexual reproduction. The second twin comes into existence by type II human creation, that is, asexual reproduction.

The first twin comes into existence through cooperation of three partners: God, man (male), and his wife (female). First twin comes into existence by sexual reproduction (type III human creation). In sexual relationship between man and his wife, sperm of man will reach ovum of his wife. Fusion of sperm and ovum (fertilization) results in zygote. Zygote has full human genetic identity with 46 chromosomes. Immediately after fertilization process is finished, God gives breath of life (soul) to the zygote, so that zygote is living and show biological signs of human life. Soul brings personal identity to the zygote. After fertilization, zygote has genetic identity and personal identity. So, zygote is already an individual human person. The zygote becomes the first twin of monozygotic twins.

The second twin does not come to existence by type III human creation (sexual reproduction), but by type II human creation (asexual reproduction). As mentioned earlier, type II human creation resembles the asexual reproduction of cassava plant or the cloning (asexual reproduction) of sheep Dolly done by Ian Wilmut.

Artificial human cloning is never done. However, Francisco J. Ayala says that individual human cloning occurs naturally in the case of identical twins when two individuals develop from a single fertilized egg. He adds that these twins are called identical, exactly because they are genetically identical to each other.⁵³ William E. May with reference to Ashley and Moraczewski says that identical twinning is a developmental accident and that the coming into being of identical twins can be explained reasonably as a mode of asexual reproduction (cloning).⁵⁴

Second twin of monozygotic twins comes into existence through natural human cloning done by God. From body part of first twin (somatic cell of first twin), God creates second twin. The genetic identity of second

twin is exactly the same as that of the first twin. However, the soul of the second twin is different from that of the first twin. Immediately after the split of the second twin from the first twin, God gives another breath of life (soul) to the second twin. The new soul brings new personal identity to the second twin. So, the second twin has exactly the same genetic identity as that of the first twin, but he/she has different personal identity from the first twin. God is the only actor of type II human creation, so the split of the second twin from the first twin occurs because there is God's intervention.

When does the separation of second twin from first twin occur? Monozygotic twins result from splitting of zygote at various stages of development. The earliest splitting of zygote can occur at two-cell stage; in this case, two separate zygotes develop. Splitting of zygote can also occur in later stage. It can occur at the early blastocyst stage. It can occur at the bilaminar germ disc stage just before the appearance of the primitive streak. It can occur after the appearance of primitive node and streak, but the splitting is partial. Partial splitting of primitive node and streak results in the formation of conjoined twins.⁵⁵ Kusmaryanto with reference to C. Ward Kischer says that monozygotic twins can occur after 14 days (after implantation), but because the splitting is quite late, this usually results in conjoined twins.⁵⁶ Fourteen days after conception is the time when implantation of zygote is complete. So, the splitting of zygote can occur between fertilization and implantation, but it can also occur after implantation.

William E. May says that in the case of monozygotic twins it is possible that some human individuals begin to be between fertilization and implantation, but most human individuals do come to be at fertilization/conception.⁵⁷ However, the splitting of zygote in monozygotic twins can occur before implantation (between fertilization and implantation) and after implantation. So, in the case of monozygotic twins, the first twin comes into existence at the time of fertilization/conception, but the second twin comes into existence at the time after fertilization onward. The explanation of monozygotic twins can be seen in Figure 6.

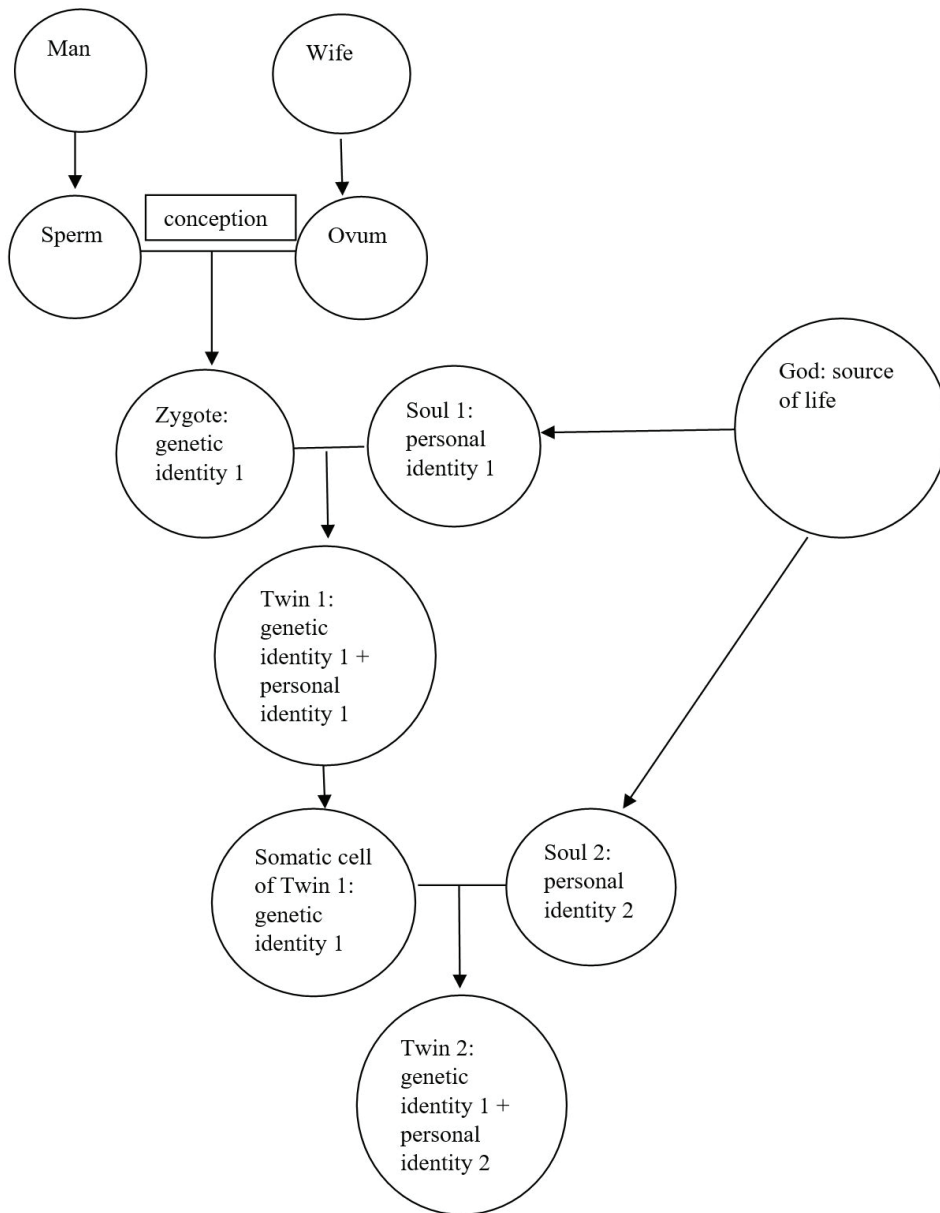


Figure 6. Monozygotic twins are combination of sexual and asexual reproduction

Refutation to Medical Perspective that Human Personhood Cannot Be Determined before Implantation

The majority of medical experts say that individual human person cannot be determined before implantation. They agree that zygote is biologically and genetically human. They agree that zygote is living, but they do not agree that zygote is already a distinct individual human person because the zygote can still undergo splitting after fertilization and before implantation in the case of monozygotic twins. They say that after implantation, the splitting of zygote does not occur anymore. Therefore, they conclude that human personhood cannot be determined before implantation, the event that takes place around 14 days after fertilization. Before implantation, zygote is not considered as human person. Due to this reason, they do not regard contraceptives that work by preventing the implantation of zygote as an act of abortion. They say that contraceptives just prevent the implantation of human cell or human organism, but not human person. So, they do not kill human person, thus they do not do abortion.

However, the above perspective is misleading. In the case of monozygotic twins, right after fertilization, new person (first twin) is formed. This person consists of body (genetic identity) and soul (personal identity). We cannot see the coming of soul into zygote (ensoulment), but the soul is the only reason that makes zygote living because soul is actually the breath of life coming from God. Due to the presence of soul, zygote shows biological signs of human life. Personal identity is attached to soul. So, the presence of soul in zygote makes it a human person, not just human cell or human organism. Zygote is indeed human person in the earliest stage of life. So, in the case of monozygotic twins, at fertilization, first person (first twin) has come into existence. Preventing the zygote (human person) from implantation so that the zygote will die is indeed an act of abortion.

In monozygotic twins, the second twin may come into existence at a time between fertilization and implantation. Right after the splitting of zygote, another person (second twin) is formed. This second person is formed by asexual reproduction. The second person consists of body

(same genetic identity as first person/first twin) and soul (different personal identity from that of first person/first twin). The genetic identity of the second twin is exactly the same as that of the first twin, but the personal identity of the second twin is different from that of the first twin. If the splitting of zygote occurs before implantation, there will be two persons at the time of implantation. In this setting, contraceptives that prevent the implantation of zygote will kill two human persons, causing two abortions. In the case of triplet twins, it causes three abortions; in quadruplet twins four abortions, and so on.

The majority of medical experts use implantation (around 14 days after fertilization) as the time to determine human personhood because they think that twinning does not occur anymore after implantation. However, biological evidence shows that twinning can still occur after 14 days, after implantation, or after primitive streak is formed. In this setting, the result of twinning after implantation is usually conjoined twins. With this evidence, “implantation” or “14 days” cannot be used as a point of time to determine human personhood. In the case of monozygotic twins, the first person (first twin) comes into existence at the time of conception, whereas the second person (second twin) comes into existence at a time after conception. There is no definite time when the second person comes into existence.

Conclusion: Zygote is a Human Person in the Earliest Stage

After considering the insights from the Bible and biology science about the beginning of human person, we do understand that zygote is really a human person in the earliest stage. God works in every human creation. God is the main actor in human creation, but God invites human beings (male and female) to participate in human creation. This participation is great honor and trust from God to human beings. However, due to ignorance or neglect, many people, including Catholics, betray this honor and trust by using or serving contraceptives that contain abortion component. Contraceptives that prevent implantation of zygote (human person) so that zygote will die are abortion.

Lastly, those who say that preventing the implantation of zygote is not an abortion are invited to reflect on the question “Are we ourselves at the

stage of zygote willing to die because we are not given chance to live?” Or “Are we ourselves at the stage of zygote hoping to be given chance to live?” Before we are born, we all are zygotes at the very beginning. We, at the stage of zygote, are the same as we at delivery and the same as we at adulthood period. If we all want to be respected and given chance to live from the stage of zygote, then we must give the utmost respect and give chance to live for zygote, a real human person in the earliest stage.

Bibliography:

- Ayala, Francisco J. “Cloning humans? Biological, ethical, and social considerations,” *Proceedings of the National Academy of Sciences* 112, Nr. 29 (July 21, 2015) 8884.
- Bertens, K. *Etika Biomedis*. Yogyakarta: Kanisius, 2011.
- Sacred Congregation for The Doctrine of The Faith. *Declaration on Procured Abortion* (November 18, 1974). https://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_con_cfaith_doc_19741118_declaration-abortion_en.html.
- _____. *Instruction Dignitas Personae on Certain Bioethical Questions* (September 8, 2008). https://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_con_cfaith_doc_20081208_dignitas-personae_en.html.
- _____. *Instruction on Respect for Human Life in Its Origin and on The Dignity of Procreation Replies to Certain Questions of The Day* (February 22, 1987). https://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_con_cfaith_doc_19870222_respect-for-human-life_en.html.
- Grogan, Patricia et al., ed. *Christian Community Bible*. 60th ed. Quezon City: Claretian Publications, 2014.
- John Paul II. *Evangelium vitae* (March 25, 1995). https://www.vatican.va/content/john-paul-ii/en/encyclicals/documents/hf_jp-ii_enc_25031995_evangelium-vitae.pdf.
- Kusmaryanto, C. B. *Bioetika*. Jakarta: Kompas, 2015.
- _____. *Kontroversi Aborsi*. Jakarta: Grasindo, 2004.
- _____. *Tolak Aborsi: Budaya Kehidupan Versus Budaya Kematian*. Yogyakarta: Kanisius, 2005.

- May, William E. *Catholic Bioethics and The Gift of Human Life*, 3rd ed. Huntington: Our Sunday Visitor Publishing Division, 2013.
- Paul VI. *Gaudium et spes* (December 7, 1965). https://www.vatican.va/archive/hist_councils/ii_vatican_council/documents/vat-ii_const_19651207_gaudium-et-spes_en.html.
- Pontifical Council for Pastoral Assistance to Health Care Workers. *The Charter for Health Care Workers* (1995). https://www.academyforlife.va/content/dam/pav/documents/papi/documentisantasede/ENGLISH/charter_for_health_care_workers_ENG.pdf.
- Sadler, T.W. *Langman's Medical Embriology*. 14th ed. Philadelphia: Wolters Kluwer, 2019.

Endnotes:

- 1 William E. May, *Catholic Bioethics and The Gift of Human Life*, 3rd ed. (Huntington: Our Sunday Visitor Publishing Division, 2013) 177; K. Bertens, *Etika Biomedis* (Yogyakarta: Kanisius, 2011) 200; C. B. Kusmaryanto, *Kontroversi Aborsi* (Jakarta: Grasindo, 2004) 100–101.
- 2 May, *ibid.*; Bertens, *ibid.*, 199–200; C.B. Kusmaryanto, *Bioetika* (Jakarta: Kompas, 2015) 22; Kusmaryanto, *Kontroversi Aborsi, ibid.*, 89–92.
- 3 May, *ibid.*; Bertens, *ibid.*, 200; Kusmaryanto, *Kontroversi Aborsi, ibid.*, 93.
- 4 Bertens, *ibid.*, 200–201; Kusmaryanto, *Bioetika, op. cit.*, 21; Kusmaryanto, *Kontroversi Aborsi, ibid.*, 81.
- 5 Kusmaryanto, *Bioetika, ibid.*; Kusmaryanto, *Kontroversi Aborsi, ibid.*, 83.
- 6 Kusmaryanto, *Bioetika, ibid.*, 29; Kusmaryanto, *Kontroversi Aborsi, ibid.*, 117–120; C.B. Kusmaryanto, *Tolak Aborsi: Budaya Kebidupan Versus Budaya Kematian* (Yogyakarta: Kanisius, 2005) 116.
- 7 Kusmaryanto, *Kontroversi Aborsi, ibid.*, 85.
- 8 May, *op. cit.*, 179.
- 9 Kusmaryanto, *Kontroversi Aborsi, op. cit.*, 90; Kusmaryanto, *Bioetika, op. cit.*, 22.
- 10 Bertens, *op. cit.*, 200.
- 11 Paul VI, *Gaudium et spes* (December 7, 1965), https://www.vatican.va/archive/hist_councils/ii_vatican_council/documents/vat-ii_const_19651207_gaudium-et-spes_en.html# (access 18.02.2022), art. 14.
- 12 *Gaudium et spes*, art. 51.
- 13 Sacred Congregation for The Doctrine of The Faith, *Declaration on Procured Abortion* (November 18, 1974), https://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_con_cfaith_doc_19741118_declaration-abortion_en.html (access 18.02.2022), art. 12.
- 14 *Declaration on Procured Abortion*, art. 13.

- 15 Congregation for The Doctrine of The Faith, *Instruction on Respect for Human Life in Its Origin and on The Dignity of Procreation Replies to Certain Questions of The Day* (February 22, 1987), https://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_con_cfaith_doc_19870222_respect-for-human-life_en.html (access 18.02.2022), art. 3.
- 16 *Instruction on Respect for Human Life in Its Origin*, art. 4.
- 17 *Instruction on Respect for Human Life in Its Origin*, art. 5.
- 18 *Instruction on Respect for Human Life in Its Origin*, art. I, 1.
- 19 John Paul II, *Evangelium vitae* (March 25, 1995), https://www.vatican.va/content/john-paul-ii/en/encyclicals/documents/hf_jp-ii_enc_25031995_evangelium-vitae.pdf (access 18.02.2022), art. 60.
- 20 *Evangelium vitae*, art. 58.
- 21 Pontifical Council for Pastoral Assistance to Health Care Workers, *The Charter for Health Care Workers* (1995), https://www.academyforlife.va/content/dam/pav/documents/papi/documentisantasede/ENGLISH/charter_for_health_care_workers_ENG.pdf, (access 18.02.2022), art. 35.
- 22 *Charter for Health Care Workers*, art. 142.
- 23 Congregation for The Doctrine of The Faith, *Instruction Dignitas Personae on Certain Bioethical Questions* (September 8, 2008), https://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_con_cfaith_doc_20081208_dignitas-personae_en.html (access 18.02.2022), art. 1.
- 24 *Instruction Dignitas personae*, art. 5.
- 25 Patricia Grogan et al., ed., *Christian Community Bible*, 60th ed. (Quezon City: Claretian Publications, 2014).
- 26 Translation of Genesis 2:7 using Today's English version is, "Then the Lord God took some *soil* from the ground and formed a man out of it; he breathed life-giving breath into his nostrils and the man began to live. Contemporary English Version of Genesis 2:7 is, "The Lord God took a handful of *soil* and made a man. God breathed life into the man, and the man started breathing."
- 27 King James version of Genesis 2:7 is, "And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living *soul*."
- 28 Translation of Genesis 2:7 using Today's English version is, "Then the Lord *God took some soil from the ground and formed a man* out of it; he breathed life-giving breath into his nostrils and the man began to live. Contemporary English version of Genesis 2:7 is "The Lord *God took a handful of soil and made a man*. God breathed life into the man, and the man started breathing."
- 29 "Human" comes from the Latin word "humus" which means "soil", so "human body" means "body coming from soil".
- 30 The interpretation of "immediately" comes from the use of conjunction word "and" in King James version of Genesis 2:7, "And the LORD God formed man of the dust of the ground, *and* breathed into his nostrils the breath of life; *and* man became a living soul." Translation of Genesis 2:7 by Christian Community Bible also use word "and", "Then Yahweh God formed man, dust drawn from the clay, *and* breathed into his nostrils a breath of life *and* man became alive with breath." The word "and" implies that the activities mentioned are very closely related in sequence. It is consistent with Catholic Teaching in *Donum Vitae* no. 5, "From the moment of conception, the life of every human being is to be respected in an

absolute way because man is the only creature on earth that God has “wished for himself” and the spiritual soul of each man is “*immediately created*” by God; his whole being bears the image of the Creator.”

- 31 Translation of Genesis 2:7 using Today’s English version is, “Then the Lord God took some soil from the ground and formed a man out of it; *he breathed life-giving breath into his nostrils and the man began to live.* Contemporary English Version of Genesis 2:7 is “The Lord God took a handful of soil and made a man. *God breathed life into the man, and the man started breathing.*” King James Version of Genesis 2:7 is “And the Lord God formed man of the dust of the ground, and *breathed into his nostrils the breath of life; and man became a living soul.*”
- 32 DNA is abbreviation of deoxyribonucleic acid.
- 33 *Exsoulment* is term to describe the event when soul is departing from body. The term is an antagonist of ensoulment (the event when soul is coming to body).
- 34 Grogan et al., *Christian Community Bible*.
- 35 Grogan et al., *Christian Community Bible*.
- 36 The contemporary English version of Genesis 2:22 says, “The Lord made a woman out of the rib” and Today’s English version says, “He formed a woman out of the rib.” In this second type of human creation, a woman does not come from soil, but from man’s rib.
- 37 T.W. Sadler, *Langman’s Medical Embriology*, 14th ed. (Philadelphia: Wolters Kluwer, 2019) 15.
- 38 Francisco J. Ayala, “Cloning humans? Biological, ethical, and social considerations,” *Proceedings of the National Academy of Sciences* 112, Nr. 29 (2015) 8884.
- 39 Grogan et al., *Christian Community Bible*.
- 40 Grogan et al., *Christian Community Bible*.
- 41 Kusmaryanto, *Bioetika, op. cit.*, 18.
- 42 *Ibid.*
- 43 *Ibid.*
- 44 *Ibid.*, 18–19.
- 45 *Ibid.*
- 46 *Ibid.*
- 47 *Ibid.*, 20.
- 48 *Ibid.*
- 49 *Ibid.*, 21.
- 50 May, *op. cit.*, 165–166.
- 51 Kusmaryanto, *Bioetika, op. cit.*, 10–12.
- 52 *Cp.* Kusmaryanto, *Bioetika, ibid.*
- 53 Ayala, *art. cit.*, 8884.
- 54 May, *op. cit.*, 181.
- 55 Sadler, *op. cit.*, 121–125.
- 56 Kusmaryanto, *op. cit.*, 24.
- 57 May, *loc. cit.*