

The Beginning of Individual Human Personhood

Paul S. Penner

University at Buffalo, Buffalo, New York, USA

Richard T. Hull

Emeritus, University at Buffalo, Buffalo, New York, USA

Address correspondence to: Paul S. Penner, PhD, 136B Park Hall, State University of New York at Buffalo, Buffalo, NY 14260, USA. E-mail: pspenner@buffalo.edu

Abstract

Even for persons who hold to the ethical acceptance of abortion practices in general, questions of detail often arise. If you assume the distinction between the physical human organism alone and the person that is associated with that organism, then you must face the question of whether it is permissible to abort a fetus if the corresponding person has come into being. We take the position that the abortion of a fetus that has achieved this level of development should be declared unethical except in special circumstances. Our purpose here is to identify the point in the development of the fetus that serves as the marker for this level.

Keywords: abortion, memory development, personhood, sensory development

... I am all that I have ever been or seen or felt or experienced.
Stranger in a Strange Land
Robert A. Heinlein

Introduction

The controversy over the practice of abortion is not simply a debate over its acceptability versus its unacceptability. Many other issues involving abortion are open to discussion. As just one example, for some religionists on the pro-life side, increased knowledge about the first 16 days of the biological development of the human organism from fertilization to the completion of the process of gastrulation¹ has produced a debate regarding exactly when a soul might become uniquely available to the individual developing organism. For some on the pro-choice side, increased knowledge about the last 4 months of the development of the human organism has produced a debate as to exactly when personhood becomes a unique feature of the individual developing organism. This latter issue is the one that will be addressed here. The conclusion will be that the 23rd week of gestation is the cutoff point beyond which fetuses should not be aborted

except under special circumstances.² This will be an ethically derived conclusion supported by empirical evidence.

II Current Approaches

When secularists consider the fact that there is little ethical difference between a human being on the day before its birth and the same human being on the day after its birth, they are confronted with an important question. Secularists do not consider a fertilized ovum as a full-blown human being in the ethical sense since they reject the religionist's claim of the existence of the soul. Therefore, this thinking goes, the fertilized ovum can be unproblematically aborted. Secularists are then faced with the question as to when in the process of gestation from fertilization to birth a human organism becomes a full-blown human being.

A common approach to answering this question is to bring the consciousness of the fetus into play. This can be done in one of two ways: by focusing on consciousness per se or by focusing on self-consciousness. 'Consciousness' is a tricky concept. One objective thing that can be said about it is that it is the phenomenon of immediately experiencing the physical world. Following this line, self-consciousness would then be the phenomenon of immediately experiencing one's own consciousness and, therefore, of one's place in the physical world as a conscious organism. Much time and effort has been spent trying to hone one or the other of these two concepts into a tool that can be used to objectively identify the time when a human organism changes into a human being. But many problems loom in this approach and they usually involve the concept of "personhood" in one way or another.

Personhood is traditionally taken to mean the possession of a range of psychological capacities such as the capacity for thought and self-consciousness. Another descriptive term, used in continental philosophy, is that of personhood as "Being-in-the-World." This refers to the state when the organism achieves awareness of its place in the physical world. In virtue of such awareness, the individual may be said to have interests, and we ascribe to beings with interests various rights as means of protecting those interests. In either of these views, a human being is the combination of a physical component (a human organism) and an experiential component (a person).

Michael [Tooley \(1983, 421\)](#) and Mary Anne [Warren \(1973, 58\)](#) hold that self-consciousness, whereby a child might distinguish between what he wants and what his mother wants does not develop until long after birth. Using this as the marker of the turn to personhood, that is, the marker of the creation of a human being from a human organism, could lead a secularist to conclude, as Peter [Singer \(1993, 181–93\)](#) has pointed out, that the destruction of a human organism is ethically permissible for some time after birth since the right to life is grounded in the ability to plan and anticipate one's future.

The problem with this use of self-consciousness as the sought-after marker of the turn to personhood is two-fold. First, if the purported timing of the rise of self-consciousness in humans is correct, then this approach violates an extremely strong intuition even among secularists that infanticide is ethically unacceptable. Fortunately, the rejection of this approach does not rest solely on this emotionally strong but objectively weak implication. The second problem is that

self-consciousness is a completely private internal phenomenon. In this sense, it is a wholly subjective phenomenon. Self-consciousness cannot be measured objectively by an outside party like other phenomena in the physical world. So, despite the elegance of the philosophical argument for the onset of self-consciousness as the marker of the transition from human organism to human being, the precise time of the initiation of self-consciousness is beyond objective determination, and the argument, therefore, is not useful in practical terms.

Tooley is not unaware of this problem, but seems to hold that there are measurable criteria for the presence of consciousness. He cites approvingly the work of Michael Lewis (1971) that links rate of response decrement to other learning tasks: two-choice discrimination and concept formation. As response decrement seemed to indicate the presence of the capacity for thought-episodes at about 3 months after birth, Tooley placed that as the time of emergence of at least protopersonhood. However, as we suggest in the next section, response decrement is now being measured substantially before birth.

Unfortunately, for the many philosophers who favor an approach involving consciousness in some way, the argument in favor of consciousness in general, as opposed to self-consciousness in particular, as the marker for the turn to personhood, also suffers from the problem described above. That is, no matter when a fetus becomes conscious of its environment, and few would deny that it happens sometime before birth, this point in time is not objectively ascertainable. It is not independently measurable and therefore is also not useful in practical terms.

These points about self-consciousness and consciousness may be put this way: both consciousness and self-consciousness are theoretical constructs brought into this discussion from widely held cultural views. They operate, however, via observable criteria for their presence that are not identical to them, for they are themselves not observable to others. Whether and when these criteria are satisfied is a matter of the state of science's art at any one time and their satisfaction as indicators of the emergence of consciousness or self-consciousness may indicate different points of emergence of the construct as scientific measurement of the criteria improves. In future, again theoretically, scientists may develop a correlation between specific areas or types of brain function and specific conscious experiences by means of the many new scanning technologies resulting in the objective determination of the beginning of consciousness in a fetus. However, we cannot rely at all on this happening. Such a technique is nonexistent today and may never be available. We need something practically applicable now, not in some possible future.

A second approach to establishing a marker beyond which abortions would be unethical except in special circumstances uses the concept of the "viability" of the fetus. In fact, this is the basis, in *Roe v. Wade*, for the Supreme Court's recommendations to the states to prohibit the abortion of fetuses beyond the beginning of the third trimester of gestation. The idea is that once a fetus is capable of surviving outside the womb (even if in fact it is still in the womb), it has at that point become an independent human being and should not be destroyed. Again, several problems with this approach exist. First, objective differences exist between races regarding the average time of independent viability for fetuses. Setting different standards for permissible abortion times among racial groups would be socially unacceptable. Second, the practical viability of actual individual fetuses outside the womb varies greatly with the available technology. The third trimester rule was probably reasonable given the level of technology in 1973, but that technology

has changed significantly since then. Premature fetuses can now be kept alive and healthy much earlier than previously thought.

The problem goes even deeper. For a number of decades, work has been underway to develop an artificial womb that would allow pregnancies that are problematic to be continued *ex utero*. Such a device would permit women lacking a uterus, for example, to generate children through *in vitro* fertilization and artificial gestation. Should a device ever be successfully developed that would carry the fetus through its full development to viability, the viability criterion as it is now encapsulated in the *Roe v. Wade* decision would be vitiated. Every fertilized ovum would be in principle viable—in the sense of being able to exist outside the mother's womb—from the completion of individuation forward. So in this sense, viability is a technology-dependent characteristic of the product of fertilization that holds well before the emergence of an individual organism. It cannot relate to or define personhood since it may precede the emergence of a precondition of personhood, namely, individuality.

A stricter interpretation of viability is possible. Viability could be taken to mean capable of remaining alive and growing with no technological intervention. But this view only leads to the question of what constitutes technological intervention. Would a mother feeding her baby artificial formula or using a spoon to feed the baby strained food be considered technological intervention in this view? Where would we possibly draw the line of technology? In order to be viable, must the fetus be able to survive on its own after birth with no help from adults? We can see the unworkability of this stricter interpretation of viability.

So taking these sorts of problems into account, viability does not seem to be useful as a concrete objective marker to distinguish between a human organism and a human person.

III Nervous System Development

As a purely pragmatic matter, a better approach currently exists than either the onset of consciousness or self-consciousness, or the determination of viability, to determine the very beginnings of the process of the development of personhood in a fetus. It is one that is objectively grounded and independently verifiable using precise measurement. This approach can be used to identify the precise stage in development at which human organism *qua* fetus begins the transition to a full-blown human being. Again, in this view, a human being is taken to mean a physical human organism with its personhood component fully developed. We are not claiming that personhood is fully developed at the stage we are identifying. We are instead claiming that this is the precise beginning of the process that eventually results in personhood, which latter development cannot be precisely determined for the reasons already presented.

The argument rests on the claim that the foundation for development of personhood is not so much the onset of consciousness as it is an earlier stage in fetal development. This stage is marked by the onset of the coordinated functioning of three aspects of the fetal nervous system: the sensory organs, the cerebral cortex, and the thalamus. The claim is that the sensory input stored by the brain (along with other types of input later in life) is the essential basis upon which our experiential individuality as persons rests.³ We see the onset of personhood as gradual, building slowly upon the accumulation of individual experience.⁴ If this claim is correct,

identifying the initiation of the coordinated functioning of these three aspects of the central nervous system of the fetus is the step that would convert this approach from a philosophical argument into a practical, pragmatic tool for promoting agreement among secularists regarding the time during gestation beyond which it is ethically impermissible to abort a fetus except under special circumstances. Fortunately, significant scientific research has been and is continuing to be done in this very important area. Here is some of what is known to date, taking each of these three aspects of the central nervous system separately.

IV. Sensory Organs

Researchers have now demonstrated that significant functioning of at least some of the fetal sensory organs is present during the 6th and 7th months of gestation. The different organ types begin functioning at different times over that period.⁵

The onset of the functioning of sensory organs can be studied by means of the phenomenon of habituation. Habituation is the decrease in a particular behavioral response that occurs over time when a stimulus is presented repeatedly. In an environment of constant sensory stimulation, the ability to ignore meaningless stimuli is essential for the efficient functioning and survival of the fetus. Studies have shown fetal habituation to be predictive of cognitive function in early childhood ([Leader and Baillie, 1991](#), 25–9; [Madison, Madison, and Adubato, 1986](#), 1475–82). Although very simple, it is one of the most widespread indications of learning. Good evidence exists that habituation reflects a healthy, functioning nervous system.

Sensory development in the fetus has been studied mostly in response to sound. Hearing can be shown to function as early as 23 weeks' gestation. Fetuses respond with a slowing of the heart rate during maternal speech, a demonstration of habituation, which in turn implies learning dependent on memory of the repetitive input. Evidence suggests that fetuses can differentiate between different speech sounds and show preference for the maternal native language ([DeCasper and Fifer, 1980](#), 1174–6). The experience of speech prenatally may begin the process of acquiring language postnatally ([Hepper, 1996](#), 12).

So beginning about the middle of the 6th month of gestation, the fetus begins receiving input from the world outside of its body and outside the body of its mother. In philosophical and psychological terminology, this input is known as perception. This nomenclature is unproblematic in postnatal humans, but what about before birth? The term "perception" has the connotation of the presence of consciousness as part of the process. But, as stated earlier, we do not know accurately when consciousness begins to be present in a fetus. Possibly (and probably), the fetus is receiving sense data prior to the time when it is conscious. Therefore, we propose that the prenatal process be called "reception," not "perception." That is, the fetus is known to receive external input from sometime in the 6th month of gestation even though it may not be conscious of that input.

V. Cerebral Cortex

The cerebral cortex has long been known to be the seat of memory despite the fact that the exact mechanism has not yet been determined. Thus, in order for the fetal brain to record the data from the input of its newly functioning sensory organs, the cerebral cortex must also be functioning. This fact has been demonstrated both for the senses of taste and smell, as well as for the sense of hearing. The experimental designs are couched in terms of sensory input versus behavioral output so that consciousness is not included as a variable.

For the senses of taste and smell, the experimenters fed different sorts of food types to pregnant women. The corresponding fetuses were therefore exposed to those food characteristics *in utero* in the amniotic fluid. After birth, the newborns were tested for their reaction to the taste of a range of foods including both the ones previously fed to the mothers and others that had not been fed to them. The findings were that the fetuses had developed a preference for the foods to which they had been exposed *in utero* as opposed to the new foods to which they were exposed after birth. The conclusion of these experiments is that a fetus stores the receptions of the specific food tastes and smells and that this information is available (whether consciously or not) after birth. This availability influences the preferences of the newborns for the types of food to which they were originally exposed ([Suzuki, 2005](#)).

For the sense of hearing, the experimenters took advantage of the habituation phenomenon for heart rates for both fetuses *in utero* and newborns in the case of music. If a fetus is exposed to a particular sound to which it has not been previously exposed, its heart rate increases. If it is exposed to that sound repeatedly, its heart rate eventually returns to its previous baseline; it becomes familiar with the sound. If this is done with music, it does not matter what kind of music is used or how loud is the exposure. The effect is the same. Experimenters exposed fetuses *in utero* to particular types of music over a period of time such that they became familiar with it, and their heart rates were at baseline in its presence. After birth, the newborns were exposed to a range of music including both the types that had been used previously and new types. Typically, the newborn heart rates remained at baseline with the familiar music and increased with unfamiliar music. That is, their differences in response *in utero* had been carried over to life after birth ([Suzuki, 2005](#)).

In a similar experiment, babies whose mothers consistently rested in front of a popular television program during pregnancy became alert, stopped moving, and showed slowing of their heart rate a few days after birth when the theme music of the program was played. This behavior was not shown by babies whose mothers had not watched this program during pregnancy ([Hepper, 1988](#), 1347–8). This indicates that the fetus is able to learn and remember familiar auditory stimuli and retain this information beyond birth.

Both of these classes of experiments demonstrate that the data storage function of the cerebral cortex of the fetuses tested is in place and able to be utilized by the time the sensory organ inputs are available to it.

VI. Thalamus

The thalamus is that portion of the brain that acts as a router of incoming data from sensory end organs. It receives the data, sharpens it by providing some selective inhibitive processes, and

forwards it to the proper part of the cerebral cortex for storage or other processing. No matter when the sensory organs and the cerebral cortex begin to function properly, sensory receptions cannot generally be stored until the thalamus is functioning properly.

In individuals who have suffered a thalamic stroke that severs the connections between sense organ signals and the cortex, it is often supposed that such individuals can experience nothing of the world around them and are conscious, if of anything, only of their own thought and memories. They differ from gestating fetuses, presumably, in having developed memories and the capacity for linguistic thought. However, other pathways allow sensory input to make their way to the cortex via mid-brain structures, but none of those sensory inputs are integrated into coherent perceptions.


The earliest point in gestation at which the thalamus is fully functioning is reported to be 28 weeks, or about 6.5 months (Kleeman, 2005, 12).⁶ This time, frame seems to conflict somewhat with the evidence from sensory experiments that report full functioning as early as 23 weeks. Until this small discrepancy is resolved, the conservative approach would be to take the shorter time frame as the norm, extending it later if appropriate.


VII. Conclusion

Given that the sensory end organs and the thalamus develop at roughly the same time in the gestation process, we can conclude that the earliest that a fetus can begin storing the receptor data that serve as the foundation for its eventual unique personhood is at the 23-week mark. Thus, in order not to destroy a person in the making (as opposed to a "mere" human organism), we should refrain from aborting any fetus later than 23 weeks in the gestation process except under special circumstances.⁷

The authors thank Gary Whittenberger for useful comments on an earlier draft of this paper.

Notes

¹ Gastrulation is the process by which the hollow bundle of undifferentiated cells called the blastula begins to differentiate into three layers of cells: the ectoderm, mesoderm, and endoderm. These layers ultimately give rise to skin, nails, brain and nerves (ectoderm); muscles, bones, heart, blood vessels, excretory system and gonads (mesoderm); and the inner lining of the respiratory system, digestive tract, and liver and pancreas (endoderm). 

² The health and well being of the mother is one example. 

³ One other factor can affect both physical and experiential individuality and that is accidents of environment. These might include chemical impingements on the fetus such as occurs in fetal alcohol syndrome, drug side effects (e.g., thalidomide) and hormonal imbalances, or physical damage from a blow to the fetus *in utero*. But these are factors that are not unique to fetuses; they

can happen anytime in life. Also, they are not part of the essential processes of development that we are discussing; they are an accidental overlay to the normal course of affairs. [↑](#)

⁴ The demise of personhood, on the other hand, can be either gradual, as in cases of dementia, or abrupt as in the sudden destruction of the human organism. [↑](#)

⁵ A special issue of *The Journal of Perinatology* (20(8 Pt 2):S2-5, 2000 December) contains multiple references to papers reporting these phenomena: <http://www.nature.com/jp/journal/v20/n1s/index.html>. [↑](#)

⁶ See section entitled "At 24 Weeks' Gestation" *Pre-Natal Development*: <http://www.cbctrust.com/prenatal.php>. [↑](#)

⁷ There is a growing discussion by bioethicists about the moral obligation to anesthetize a fetus that is to be aborted beyond the point where fetal pain is a possibility. We agree that such a requirement should be adopted for the third trimester abortions that we permit under the kinds of serious threats to the mother's health and well being that would, on our view, justify late-term abortions. It follows from the facts given in this paper about the existence of functioning sensory nerve receptors, the cerebral cortex, and the thalamus at the second and third trimester boundary that pain sensors might very well be functional as well. Since it is not clear whether a fetus might be conscious of such possible inputs, it is better to once again err on the conservative side and use the available technology to insure that the fetus is pain free in a third semester abortion.

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