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Philosophy and Neurobiology: towards a Hegelian Contribution on the Question of the Juridical Status of the Human Embryo

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Biography

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Abstract

Our purpose in this paper is to show the relevance of Hegelian Philosophy for discussion and reflection on Ethical and Bioethical matters, such as euthanasia, abortion, research on stem cells, genetic modification of human cells, etc. We shall deal, in the first place, with Hegel's notion of "person" (discussions on abortion or use of embryonic cells arise when one tries to attribute or deny *personality* to a determinate set of cells—that is when one tries to establish the juridical status of a developing human "embryo") as developed in his *Philosophy of Right*; then we shall deal with the contribution that Neuroscience can make to the understanding of the *material* or *natural* substrate, on which, ultimately, processes (mental, or *spiritual* in Hegelian language) related to the Hegelian notion of *person* rest. Finally, we shall offer a conclusion on the relation (first thinkable and experimentable in our own days) between the central nervous system and Philosophical concepts like *person* and *subjectivity*; in the end, it will be argued that Hegelian Philosophy offers an optimal model for an understanding of human freedom, will and rationality in terms of the neural activity of definite brain structures such as the limbic system, the prefrontal cortex, the basal ganglia, etc. Such Philosophical concepts, along with *personality* and *subjectivity* are essential when discussing and reflecting on the *personality* or *non-personality* of a human "embryo."

Keywords

Personality, subjectivity, Neuroscience, free will, freedom

Despise, if you will, understanding and science,
The highest of all the treasures of Men –
And to the Devil you will have surrendered
And must then perish.
—J.W. Goethe

A lot (and maybe not enough) has been written and discussed in the last year on subjects such as abortion, euthanasia, medical research on stem cells, cloning, utero-rent, fertilization *in vitro*, the uses of genetic information, etc. It has been said, on the one hand, that human life deserves an absolute and infinite respect; on the other hand, it has been said that the medical potential, in the sense of saving and improving the quality

of human lives is equally infinite, if it be the case that the juridical frame of a given territory allows the research potential of the biological sciences and techniques to be set free; likewise, on the public health arena there is the question of whether it should be allowed or not that a human being decides on the termination of his own biological life (euthanasia) or on the termination of the life of a human being developing in his (her—properly speaking) own interior (abortion); all this on the basis of a formalist (*à la* Kant) or utilitarian (*à la* Bentham) argument. Concerning all these discussions, one comes upon the following boundary concepts: “person,” “dignity,” “right,” “justice,” “legality,” etc. The quarrelling sides differ on the *conceptual* referent of such terms, and therefore, differ on the concrete *practical* agenda that must be defended and called for in the social and scientific spheres, on the basis of such conceptual referents. And finally, this quarrel has, as an arrival or resolution point, two concrete instances: the positive juridical reglaments and the collective frame of ideas (the habits and customs, ideology, etc.) of a given territory (a country, a province, etc.).

We consider that the present posfordist world calls pressingly for a renewed involvement of Philosophy with the medical, ethical, and legal debates of our days in such a way that, on the basis of the synthesis and systematization *pathos* that characterizes the philosophical thought of Plato, Aristotle, Kant, Adam Smith, Hegel, Marx, etc., it be possible to articulate the scientific breakthroughs in areas such as Molecular Biology, Genetics, and Neuroscience with philosophical subjects such as “personality,” “morality,” the “will,” “dignity,” etc.

So, our interest in this paper is to show the relevance of Hegelian Dialectics (dialectics, simply understood as a worldview which considers that from matter, there stems out consciousness, and from there the conceptual grasp which in turn allows the conformation of matter in accordance to ends) for reflection on and discussion of the subjects listed above concerning the treatment of the human embryo. In order to accomplish this, we shall focus on two central matters: first, the definition of the concept of “person” (because, in the end, when one reflects and discusses upon abortion or embryo-research, the dispute arises when personality is attributed or not to a given set of cells), and second, the contribution that Neuroscience can make to the understanding of the *material* or *natural* substrate which underlies, in the final count, the determinations around the concept of *person*. In the end, we shall offer a couple of concluding remarks on the relation (for the first time thinkable and experimentable in our own days) between the central nervous system and the philosophical concepts of *person* and *subjectivity*.

I

Hegel defines¹ the *person* as “the singular as free will”² (Hegel, 1983: 223). What is relevant in this definition, besides its *modern* character (in the sense of the History of Philosophy), is that it can be easily linked with current subjects of study and research in Neuroscience, which will be the subject of the next section. Therefore, we consider such a characterization to be the more adequate to the approach to the question on the juridical status of the embryo than the old and even canonical one from Boethius, which considers the person as an “individual substance of a rational nature” (Boethius *apud*. Agazzi, 2007: 115). In the final count, this definition, proceeding from a distant Medieval world, and of a theological and Christian inspiration (as well an Aristotelian), does not allow us to see clearly enough the decisive matter in the Hegelian perspective, on the question on *personality* itself, namely, the notion of *freedom*, and the concomitant notion of *will*.

In this moment, there arises the question: why should the Hegelian model of reflection centered upon “will” and “freedom” be preferred to the Boethian-Aristotelian one centered upon substantiality and rationality? To the purpose of our argument, we answer concisely: just the fact of stating this question (and as a matter of fact, any question!), is precisely already the affirmation of that, which, broadly, Hegel calls, *freedom*. In other words, in stating the question for the “being” of the substance, and for the ontological necessary conditions for the consideration of a given substance as “rational,” we are, above all, affirming a *theoretical* effort to *conceptually grasp* a given aspect of reality, or of the world in general, to guide, in a certain moment, our *practical* behavior. In this way, it should be confessed that behind every question (and to this day, we have only seen human beings, spontaneously, *state* questions) there is the affirmation of the freedom of *someone* who sets himself to question. To the concrete source of this *freedom*, Hegel calls precisely *will*.

Thus, we could preliminary conclude, in order to continue our reflection, that, in order to be able to state, firstly, any theoretical question such as the one of the “rationality” of a substance, one must have the *will* to do it. And the *will* to execute such a cognitive operation (of that later) cannot but be *free* (the end proposed—to grasp conceptually—cannot but be conceived by the inquirer himself). We consider that, in light of these brief

1. It may be remarked, that Hegel held lectures concerning the Philosophy of Right, from 1817 to 1831 in Heidelberg and Berlin. In this paper we use the *Philosophy of Right* from 1821 (the only one revised and authorized for publication by Hegel himself) and other secondary sources, based upon student notes from the lectures on *Philosophy of Right* held by Hegel.

2. All translations in this paper are ours.

statements, it should be possible to better understand Hegelian assertions such as “In this rests all the value of man: in that he knows himself as person” (Hegel, 1983: 44) and “The freedom of man, nevertheless, consists precisely in building his own nature, in making a nature for himself” (Hegel, 1983: 211). In this way, what is decisive and essential in the human being (as well as in his social, political and economical environment) is precisely, the *affirmation of freedom*, the construction of a *theoretical and practical* world in which he considers and knows himself as a free being, and acts as such (and so, not as a slave or as a serf).

The link of these reflections with legality (that is, with matters concerning “right”) is direct: “Will, in as much as it thinks itself [as free, one may add], is the source of right.” (Hegel, 1983: 209). So, one may conclude, that the source of right and so, of its main determinations as life, property and conviction is, fundamentally, free will, and not mere substantiality or natural materiality. Thus, following Hegel, it is not the natural constitution (and in our own days, we could say “genetic constitution”) which determines that the human being be a entity with absolute value and infinite; it is his spiritual constitution (that is, thinking, acting in accordance to ends, etc.) which does, because, indeed, only a thinking and acting being could declare itself and others as centers of absolute dignity and respect.

In this point we wish to introduce a transition to the biological part of our work, in order to, afterwards, take up the question on the juridical status of the embryo. The basis for establishing such a center of reflection is the following Hegelian fragment:

Entrails and organs are considered by Physiology as moments of the animal organism; nevertheless they constitute, in turn, a system of embodiment of the spiritual, and with that [in human being, above all], they attain an entirely different signification. (Hegel, 1991: 328)

Let us turn our attention to how Neuroscience can, presently, undertake this question, noted above of the “embodiment of the spiritual.”

II

“Free and conscious decision making, if at all existent, is one [of] the most complex presentations of human behavior. Process of decision making was frequently explored from the philosophical and psychological aspect, but remains [a] poorly studied topic in neuroscience” (Pirtosek, *et. al.*, 2009: 42) states a group of Slovene Neuroscientists in 2009. Also, in effect, the consideration of the subject of “free will” from the neuroscientific perspective is only possible towards the end of the twentieth century (Pirtosek *et. al.*,

2009: 38), and constitutes, therefore, an area of research, particularly recent and even in its origins.

What we intend now in this point is to (re)consider the old question of the relation soul (mind)–body, from a strictly immanent perspective, that is, a perspective that from the beginning rejects flatly the existence of two different substances (*res cogitans*, *res extensa* in Descartes), or of a “this side” and an “other side” (the Christian worldview and any other metaphysical ravings). Such a perspective is to be clearly found in Hegel: “The I determines itself [...] This is *freedom* of the will; freedom itself constitutes its own concept or substantiality; its center of gravitation” (Hegel, 1979: 55). If the I, or consciousness aware of itself³, or will related to itself, can determine itself, from itself—the reader will forgive the repetition—(and this itself, is placed within a *physiological* system of “the spiritual”), then, it is not necessary to invoke any instance such as *res cogitans* (Descartes), or an immortal soul (Christianity) to explain the translation of the will to determinate mental or motor *movements*. This is expressed by Neuroscience as follows: “From the non-dualistic perspective decision making is a brain process” (Pirtosek *et. al.*, 2009: 39).

So we can take forward our reflection to the following statement: “free will” (that which, as we saw above, determines from itself) has a physiological basis. So that emotional, motor and cognitive processes, which in the Hegelian system are studied under the titles of “inclinations and passions” (among others, as memory, etc.—see *Enzyklopädie §474*), “movement” caused by nerves (*Enzyklopädie §354*), and “theoretical spirit” (*Enzyklopädie §445*) have very concrete cerebral referents, as “mesencephalon,” “basal ganglia,” “lymbic system,” “prefrontal cortex,” which, in the final count, are responsible, precisely, of the transmission of “lymbic [that is, emotive], motor and cognitive information” (Pirtosek, *et. al.*, 2009: 42).

In this way, one may thoroughly speak of a “volitive system,” which integrates information “about a person’s specific needs and wants, personal and social norms for behaviour, current enviromental status, memories and effectiveness and consequences of past behaviour as well as a large body of additional information,” which may command concrete conducts such as “whether to act or not,” as well as the specific aspects of “what, when and how” (Drubach, *et. al.*, 2011: 243) of the action itself. In this way, this volitive system, even though it is not still completely characterized (Drubach *et. al.* speak to this

3. The Hegelian reflection of the “path” from consciousness to science can be found, in detail, in the *Phenomenology of spirit*. Hegelian “definitions” of *consciousness*, *self-consciousness*, *reason*, *spirit*, *will*, etc., can be found there.

moment of a “black box”—see Drubach, *et. al.*, 2011: 245), can indeed be associated to determinate areas of the cerebral cortex such as the dorsolateral prefrontal cortex, and the ACC (anterior cingulate cortex—see Drubach, *et. al.*, 2011: 245); the recent and concrete evidence for establishing a correlation between these areas and the “superior” functions associated with free will comes from specific clinical cases in which an alteration of the “normal” function of these areas (caused by mechanical damage or cell degeneration) produces effects such as “poor planning and/or judgement,” “alteration in “decision making,” “disinhibition, impulsivity, and altered goal-oriented action generation, implementation and retro-assessment” (Drubach, *et. al.*, 2011: 240). This has lead scientists, precisely, to consider certain areas of the brain (again, specifically the cortical region and concretely in the prefrontal cortex) as the “neurobiological basis” of “free will” (Drubach, *et. al.*, 2011: 239).

In this way, the initial Hegelian definition of person as “the singular as free will” should receive a new and intensified clarity, to the light of this neurobiological reflections. As, in effect, the thesis of the neurologists that “The voluntary action starts with determination of the purpose of the action” (Pirtosek, *et. al.*, 2009: 49) concurs perfectly with Hegelian theses that read “All the determinations of the will may be called ends” (Hegel, 1979: 55) and “A will which does not determinate itself is not a true will” (Hegel, 1979: 64).

III

It is moment to lay down some reflections, as a conclusion, in order, above all, to undertake finally, the question concerning the juridical status of the embryo.

Hegel and Neuroscience, coincide, broadly, in these two theses:

- The fundament of freedom lies on the *capacity* of the will to assume (that is, conceive, and execute or reject) determinate *ends*.
- The capacity of the will to assume determinate ends lies in the *physiology* of the (central) nervous system.

And so, if we follow the Hegelian characterization of the person as a “singular as free will,” we should already possess the sufficient elements to offer a couple of conceptual guidelines in order to consider which juridical status a certain cell group possesses, throughout its development *process*, as, in effect “The embryo is, *in itself*, a human being, it is not, however, *for itself*; for itself is the human being only as it is culturally educated reason which has *made* itself, what it is *in itself*” (Hegel, 1986: 25); so that the task of a Philosophy (or Ethics to be more precise) of Hegelian inspiration, combined with a neuroscientific approach, such as the one sketched above, consists, clearly and distinctly

in dealing with this question: in which specific moment of the embryonic development are the physiological structures to be found, *without which*, or without whose *adequate functioning*, the dialectical-neurological phenomenon of the *assumption of determinate ends*, does not take place?

To respond, even approximately, to this, one must consider the following: the “new” human being (embryo, in the general sense: in any case, the proper definition of embryo shall be given below) product of the fecundation, that is, of the union of a maternal ovule with a paternal spermatozoon, begins being only a mere aggregate of cells in constant differentiation and division. Only after concrete and determinate moments of development, the development of the physiological *origins* of the future organs and systems (fully developed) occurs, in a newborn baby, or in a child or adult. For instance, before the fifteenth of sixteenth development day, in the new human being one can not find the ectoderm, mesoderm and endoderm cell layers, which are the *original source* of all tissues, organs and systems of the fully developed human being; the formation of these layers is called *gastrulation*. Then, it is not until the period that comprises the third and eighth week of development when the process of *organogenesis* begins, that is, the beginning of the formation and differentiation of organs and systems. In this period, it may be properly spoken of *embryo*, while in the development staged comprised between the ninth week and birth, one should properly speak of *fetus*. Finally, structures such as the thalamus, the third ventricle, the mesencephalon, the brain stem and the cerebral hemispheres are not developed until the twelfth week of gestation (Sadler, 2003).

As one may tell, an important source of controversies arises precisely around the subject of the marked (or markable) out phases of embryonic development, and their relation with the notion of *personality* in the embryo. We, on the basis of the theory presented above, can contribute the following:

- Until before gastrulation, and organogenesis, the structural origins of the “system of the will,” do not even exist.
- It is until the twelfth week of development when one may speak of the structural existence of the “system of the will.”

In this way, we could conclude: an embryo, in the general sense of the term, before the third week of development does not possess the juridical status of a person in any way. Because it does not even possess *original* or *primitive* elements of the system of the will, necessary for the assumption, execution and rejection of ends; instances *without which* it may not be thought or spoken of *personality* in the proper sense. The question of the later embryonic development, without any doubt, may be yet a matter of controversy, as one would have to determinate, in the most possibly exact way, the moment of development,

in which the brain areas involved in the dialectical process of the will, are developed and articulated. The twelfth week date, to this date, seems to be widely accepted, as the moment in which the central nervous system shows a sufficient development, so as to be able to transmit emotive, motor and cognitive information; instances, it may be repeated again, necessary for the full expression of the will.

Finally, one may deduct the practical guidelines on the basis of these premises. For example, the right of women to interrupt pregnancy before the third week of development must be *tenaciously* defended, without any fear of damaging any right (as there is not even one neuron in the embryo,⁴ an element *without which* there does not exist a central nervous system *at all*, and so, neither *personality*, nor *subjectivity*, we may add). In the later stages one could endure, and even foster subsequent debates; however, one may, with some reservations, defend the right of women to interrupt pregnancy before the twelfth week of embryonic development (because, before this moment, the structural presence of the system of the will is not to be *fully* found).

Questions such as embryonic cell research, the extraction of stem cells from embryos, the *in vitro* cultivation of embryos for the purpose of research, etc., would deserve a special treatment; one that should include the Hegelian spheres of morality and ethicity. However, the juridical basis for reflection and discussion would be the same as the one expounded here.

4. See Sadler, 2003: 433.

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