ONTOLOGICAL INDETERMINISM AND IMMANENCE
SOME ASPECTS OF THE METAPHYSICS OF ORGANISM

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(Received 3 June 2020, revised 15 August 2020)

Abstract

After an overabundance of the discussion of methodological issues, philosophers now retain the ontological issues in the literature of the philosophy of Biology. Along with the niche construction, for Ontology, they tend to avoid the tedious 'conventional' metaphysical debates. Recent publications on the ontological aspects of organism agree with this. The paper thus argues that contemporary debates on the ontology of organism rest on the 'new wave' metaphysics that is prevalent in Biology after Darwin. It then explores the non-mystic nature of Metaphysics associated with the organism by recasting immanence in Biology.

Keywords: organism, mechanism, Ontology, immanence, Metaphysics

1. Introduction

The concept of organism retains its prevalent status after an impasse caused by the unrestrained focus on the epistemological issues in the philosophy of biology literature. Most recent works in this area establish the claim that the question 'what is an organism?' is potential enough to begin a philosophical inquiry on biological aspects [1, 2]. This could be seen as philosophers' acquiescence of the fact that Epistemology has its root in the Ontology. By setting aside the scepticism over the ontology of organism resulted from the debates between Mechanism and Organicism, philosophers now try to address the aforementioned question by interposing it between *substance* ontology and *process* ontology. The different reality claims that aimed to provide true descriptions of living entities turn out to be contingent assertions due to the lack of a 'model organism' to validate them. Different approaches; like Mechanism [3] or Organicism [4-6] conceive organism differently and stimulate the persistence of our confusion over the ontology of organism. They have created a

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pluralistic understanding and that is why the organism seems to be "very much to the forefront among philosophical biologists at the present time" [7].

Both conventional and contemporary endeavours that meant to reveal the reality of organism rest on the kind of metaphysics that is vogue in the philosophy of Biology. A profound understanding of the Metaphysics, allied to the organism, and its non-mystic nature not only debilitates the anti-metaphysical cry but also foreshadows the indisputable limits of explanations in Biology. With a historical outlook of the issue, the paper strives to differentiate organism from the mechanism in a non-conventional way by pinpointing the varied nature of organismic action. The self-originated nature of organismic activities strikes us to identify the possibility of *immanence* in Biology. Immanence provides an ontological foundation for the intrinsic organismic action without appealing to mystic supernaturalism. The paper thus explores the distinctive possibility of immanence in exploring the nature of Metaphysics allied to organism. As an appendage, it supplements the idea of non-mystic metaphysics in Science.

2. The inwardness of causality and teleology

Pursuing an account of organismic action along with a consideration of the Mechanistic paradigm by which physicalism ordains the conditions of existence of motion is an exciting effort that would bring, perhaps thinking about the ontological difference between organism and mechanism [8, 9]. The seventeenth-century science had stereotyped action as a phenomenon that obeys mechanical laws. The illumination of Science with *Mechanism* and the resultant origin of *physicalism* happened just after Descartes had launched a provocative doubt on the ontological difference between biological and mechanical entities.

Pursuing a generalist account of action/activity through Mechanistic parameters would be inappropriate due to the *kind* difference that is rampant concerning organic and inorganic entities. And such a claim is stemmed from the understanding of the difference in the condition of the existence of entities. The Mechanistic paradigm thus is not adequate to account for the organismic activity in its entirety. The Mechanistic principles say Newtonian, may substantially address the activities of the mechanical objects and could be an inference to the possible explanation of the activities in the mechanical realm as it rightly justifies our experience of the machine movement [10]. Though prevalent the Newtonian perception of action/activity it does not cover the activities in (of) living beings. The reason for this lies in the ontological difference organism possesses from the mechanism.

Taking multiple manifestations of organismic activities [11] into consideration, the prime concern here is to establish the claim that Mechanism fails to account for the biological activities. The inapplicability of mechanistic parameters does not indicate that the activities of life-induced things are either avoided or reduced. Rather, it reminds us that the mechanistic reduction of organismic activities will not settle the issue. Recognition of the dual nature of

activity [mechanical and biological] threatens the Mechanistic overestimation of action as a mechanical phenomenon. Unlike machines, organismic activities are mostly unmediated. They are acts-in-themselves. This specifies the fact that organisms can act without following mechanistic principles. Vittorio Possenti has taken this matter to another level by arguing that there are two kinds of actions; 'natural' that comes *from within* and 'artificial' that comes *from-without* [12]. Based on Possenti's remark, it is significant addressing the question 'how do we account for the difference between organism and mechanism in terms of action?'.

We are acquainted with many machines which are meant to lighten our everyday life tasks and their existence invariably presupposes the anthropocentric teleology. Unlike this, the causality of an organismic action refers to its very internal factors. Both organismic and mechanistic activities are teleological in a general sense. However, the human subject *from-without* decides the purpose of action in mechanisms while it is intrinsic in the case of an organism. The inwardness in terms of causality and teleology leads to the idea of immanent causation, i.e. the cause and effect occur in the same phenomenon [13, 14]. One may find traces of immanent causation in the history of Biology from ancient vitalism to contemporary molecular genetics. However, in the inquiry concerning the ontological aspects of organism, Aristotelian views are more promising than molecular biological explanations [15]. Aristotelian biology endorses an inner principle as the cause of organismic activities; the inner directive power (soul) then was considered as the locus of all activities [12, 16]. The organismic activities hence depart *from within* the organism in classical Biology.

Descartes in the post-Aristotelian age attempted to overcome *vitalism* in Biology with a 'machine metaphor' [17, 18] that reduces organism to the mechanism. The Cartesian machine metaphor is also turned out to be ambiguous concerning the self-referential nature of organismic activities. Unlike machines, an organism is capable of keeping itself in action by regenerating the input energy. The action in the living sphere has an origin and an end in the same place - the organism. The causality is *immanent-to-itself*. Descartes' effort to de-spiritualize matter had resulted in *reductionism* which expunges the inner influence [P.J. Wendel, *Mechanical Metaphors in Unlocking the Mystery of Life*, The 9th International History, Philosophy and Science Teaching Conference, 2007, http://www.personal.kent.edu/~pwendel/page3/files/UMOLIHPSTJune2007.pdf]. Molecular biology in the contemporary scenario reiterates the adage of this seventeenth-century Mechanistic reduction differently [19]. Cartesian corpuscles supplanted the DNA here. The ontology of an organism but does not rest 'only' in these fundamental parts; whether it is corpuscles or genes or DNA. This overwhelming attention to molecular entities signifies the *ontological reduction* of organism in Biology [20].

The *organicism* approach was also proposed to determine the ontology of the organism. Organicism, as materialistic holism, calls off reductionism as well as discards the vital concepts such as *elan vital* and *entelechy* from the purview

of Biology. Organisms are *wholes*, thereby, we should study them as wholes and not as the sum of their parts [21]. The reality of the whole cannot be located in mere parts due to their irreducibility to the former. The conventional reductionism thus fails in addressing the essence of the whole. Biology cannot progress in a reductionist way not because there is something irreducible in Biology but because of the necessity of a different strategy to explain the aspects of life [http://www.personal.kent.edu/~pwendel/page3/files/UMOLIHPSTJune 2007.pdf]. The living beings exhibit a mediated kind of existence between metaphysical and physical; so that a different approach is required for Biology to understand organism in its entirety. And Organicism appeared as a unique approach to understand the ontology of the organism. Its rejection of conventional metaphysics and the assumption of the *emergence* of properties altogether point to the presence of an immanent action in the living sphere. The sense of *holism* here is entangled with the ontology of organism (for a discussion on the varied ontology of organisms, see Schrodinger [22]). Besides these Kant believed that organisms are *organizations* [23]. An organism is both means and end of its existence so that its organization is devoid of an extraneous agent. He calls this built-in condition of the organism as the *intrinsic purpose* which retains the reference to the internality of organisms [24]. The internality mentioned here is the condition to which Hume was pointing in his account of causation by exposing the *secret connexion* between events, i.e. cause and effect [25-27]. This secret connection is not extrinsic but intrinsic.

If Dobzhansky was right in his claim that Darwin's approach was organismic, then evolutionary biology can substantially contribute to this discussion of immanent organismic action [20]. For him, natural selection is the "preservation of favourable individual differences and variations, and the destruction of those which are injurious" and a fitness-oriented explanation like this satisfies our urge to know the 'how' aspect of the organismic feature [28, 29]. The conditions for natural selection, however, necessitate the pre-existence of variations within organisms that refer to the *from within* causal condition of organisms. The changes take place internally in organisms and a Bergsonian kind of intuitive methodology is required to understand it as scientific methods cannot reveal the internal changes [30]. The internal changes that occur in the organism do not refer to any transcendental element but an inner influence in itself.

All these accounts of the organismic aspects discussed so far are pointing to the inner principle as the causal factor of organismic activity. The causation concerning organismic activities expresses an inward rather than outward nature. The distinction between organism and mechanism can then be expressed as "that thing whose movement is from outside, is inanimate, but that to which it is intrinsic to itself to be moved by itself, is alive" and this instigates us to believe that the prime factor of an organism's motion is the "proper office of life" [31]. In this sense, it might not be wrong to think of *life* as the force that inherently makes organismic actions possible. At least in the biosphere, there is a reference to *from within* nature of actions caused by an intrinsic factor. It could hence be a

natural fact but the ontology of which possesses an empirically irreducible nature. An articulation of the relation between 'how come' and 'what for' aspects of the *why* concerning organism is required to establish the argument for an immanent action in organisms. The 'what for' is qualitatively ascribed with teleology. The term *teleonomy*, instead of teleology which is an 'anathema' [32] to scientists, is often used in contemporary discussions to indicate the purposive nature of biological phenomena. It needs to clarify how biologism varies from physicalism before getting into the teleological issues.

3. Physicalism, Biology and Teleology

On the one hand, physicalism, to generalize its methodologies, treats organisms and machines alike. On the other hand, any attempt to explain the organism with the methodologies of physicalism brings a feeling of uneasiness in biology. This is so because features like heredity, homeostasis, metabolism, etc. are unique to the ontology of organisms which resultantly screen off the celebrated methodologies of physicalism. One of the paramount differences between Biology and physical science is this methodological incompatibility. Haldane in *Life and Mechanism* establishes the ontological difference between organism and mechanism through an explanation of Darwin's experiment with earthworms [33]. He moves on to the discussion by supposing the existence of a natural force that influences organisms in developing adaptive behaviours. His view is relatively analogous to the thoughts of Aristotle and Spinoza once if we omit the metaphysical part of the latter. Both Aristotle and Haldane necessitate the presence of an influential force within the organism. Haldane's view corresponds to Spinoza's *pantheism* which argues that God relates to nature immanently [34, 35]. For Spinoza, God is the influencing force in nature. Both Aristotle and Spinoza consider both living and non-living while necessitating an inner force while Haldane refers only to the biological phenomena. The analysis of Haldane's account illustrates that the principle of reciprocity that is prevalent in all organismic activities. That means organismic activities target the self-maintenance of organisms. Mechanical actions are not for the self-maintenance of machines because the 'what for' aspect is induced externally by a human subject.

The discussion of biological variance suffuses with a stratagem, i.e. organism which is a hybrid concept with multiple understandings ranging from metaphysical and empirical to ideological and biological [20]. However, the first and foremost consideration of organism is that it is a complex self-organization. It is not the self-organization but the resulting *form* which is the matter of discussion here. Self-organized chemical molecules exhibit geometrical forms while the self-organized organism exhibit non-geometrical but adaptive nature. Unlike the geometrical structures of self-organized chemical molecules, the adaptive form of organisms is caused by the form-less life. This might be the reason why Kant thought life is the capacity of a substance to determine itself to

act from an inner principle [23, p. 263]. The substance here signifies the organism and nothing else.

The definitive nature of the causality is replaced by Teleology in Biology. Teleology thus is to be seen as an outcome of human beings' "reflection on the circumstances with [their] own voluntary actions" [21, p. 8]. The explanation of any human action would be incomplete except for a notice on anticipated results. Likewise, evolutionary adaptations cannot be explained without pointing to their contributions to survival and reproduction. Adaptations hence contribute to evolution which is their *ultimate* arrival point besides the *proximate* functional roles. Organisms as natural systems possess intrinsic teleology and not refer to an intensive element outside. Aristotle and Kant underline the belief in natural teleology in their biological discussions. The intrinsic natural power of organisms in Kantian thought does not refer to the kind of teleology Aristotle proposed. It would rather be a reference to the evolutionary kind of teleology. Since the concept of formative power is self-propagating, self-explanatory, self-evident, and end-setting, Kant's view of Teleology out-grows from Aristotle's and then give the hints of its immanent nature. Organisms are organized wholes where the part-whole relation is reciprocal and not exactly causal. Kant with a teleological account then discards the Cartesian Mechanism in the descriptions of living beings [36].

4. Towards the biological immanence

The discussion here takes a diversion from biological matters to the philosophical concept of immanence to show how the biological state, where actions come from within, can be addressed. Spinoza is considered as the first and foremost to the champions of immanence however, the conceptual crux of the concept can be traced in the discussions of Plato and Aristotle, or even in the Democratic *atomism* [37-39]. The principle of inseparability concerning *form* and *matter* is the locus of immanence in Aristotle's thought. For him, things have the body as matter and soul as form. The soul is identical to the concept of internal teleology - the trigger in the process of actualization. The development from a zygote to a well-adapted human being, for example, is an organized process. Aristotle saw it as soul-directed or purpose-oriented progression. That means an internal push causes the formation of a thing's *being*. The force that comes *from within* naturally accelerates the potentiality to move towards actuality. Spinoza used immanence to express the inseparable relation between God and nature. Spinozian pantheism is a proclamation of the internal boundedness of ontologically differentiated entities. He presented God as the immanent intrinsic force that efficiently causes the existence of the world. The immanence thus refers to a state where the abstract universal principle possesses an inherent inseparable relation with concrete particulars. This inseparable oneness is the ontological ground of the *being* of things.

The concept of immanence manifested differently throughout the history of Philosophy and then becomes, as Deleuze opines, the very vertigo of Philosophy [40]. Some of its characteristics; say inseparability, intrinsic, and internality, can be used to bind all these diverse conceptualizations of immanence together. The conceptual schemes of immanence have significant roles to play in Biology when addressing the ontology of organisms. But to reintroduce immanence in Biology demands a generalized explanation of immanence. The necessary convergence of distinct philosophical understandings of immanence perhaps leads to the inner core of immanence which had a non-linear progression in history.

Spinoza's consideration of God as the immanent cause expresses the invariable bond of nature with God. Immanence here indicates the state where modes (the world of experience) necessarily relate to the substance (God). Deleuze seems to agree with Spinoza on this point. There is something common between the phenomenological *plane of immanence* and the rationalist *immanent cause*. Spinozian 'modes' and Deleuzian 'concepts' exist in the ground or a plane without which they neither exist nor non-exist. The expressions such as modes are `in substance' (in Spinoza), and '*ex nihilo* creation' of concepts (in Deleuze) refer to the same concept, i.e. 'immanence' - a concept that refers nothing beyond the phenomenal level. It correlates with 'inherence' but the latter is not identical to the earlier [41]. Inherence indicates the inseparable eternal relation. The perception of universal in particulars is a classic example of inherence: the *Ideas* whether Platonic or Aristotelian are universal and one cannot conceptualize them without experiencing their particular instances [42]. The universal exists and expresses itself in the particulars. Aristotle's form-matter unity also indicates that neither of them enjoys an independent existence. Kantian synthetic judgment will be an impossibility if we separate *a priori* from *a posteriori* [43]. Hegel's *absolute* [44] is nothing other than the *thesis-antithesis-synthesis* triad. The biological concept of 'species' one may understand through inherence; the species (for example, *Homo sapiens*) become a meaningless verbalization without individuals.

Let us explore how we can connect immanence to Biology concerning 'inseparability, internality, and inherence' on the one hand, and 'ground or plane' on the other. In Biology, life is the thread that binds all the thoughts about organisms together. Without the pre-conception of life, no one can conceive of any system of organismic thought. It reveals that one way to apply immanence in biology is to attribute it to life which is the 'ground' of the subject. All living beings and their attributes are grounded on life so that it is the *plane* where the concepts (of Biology) have an existence. For example, concepts such as species, autopoiesis, inheritance, metabolism, etc., are those which cannot get meanings except an understanding of life which is the 'plane of immanence' in Biology. Apart from this, life can be considered as the ground or the substance of all its modes (living beings). For the present purpose, the focus here lies only on the organismic action although all attributes of organisms relate to life.

Autopoietic activities of living beings, for instance, do not refer to any external intermediation and hence point toward intrinsic causality. The cause that produces an effect on the organism by acting *from within* is intrinsic. It would be paradoxical to assign an external cause to a phenomenon that comes into existence due to an internal cause within itself. This unfeasibility of substituting a *from without* cause demands the necessity of an internal or intrinsic cause for the self-action in the living realm. This invariability of intrinsic actions is bound with the ontology of the organism. This organismic internal state where action comes *from within* actually calls for the idea of immanence in Biology. The organismic phenomena are, thus, caused by an immanent action of life which is the *ground* of all that is living.

5. Immanence and Teleology

The functional explanation of organismic features connects natural selection to teleonomy, if not Teleology. The evolutionist's preoccupied duty is to find out the causality behind the existing biological phenomena. Causality has three aspects, i.e. explanation, prediction and teleology [29]. Evolutionary epistemology seems to be silent on prediction concerning evolution [45]. Darwinism provides *a posteriori* as well as teleological explanations of organismic features [11, 46]. Taking these for granted, it seems causality does not go outside of the play of *proximate* and *ultimate* reasons. This apparent purposefulness biologists call teleonomy. The teleonomic features are relative as they are meant to maintain an organism's existence. This kind of 'purposive self-relation' accounts for the existence of life in organisms [47]. The features organisms used to survive and reproduce are adaptations and this usefulness justifies their existence. The organismic functions are natural in the sense that they come *from within*. The function of a machine is artificial because of human mediation. Hence, they are causally determinable. The causal and teleological factors of organismic activities are inexpressible in 'determinate' terms because of the apparent indeterminism concerning the underlying intrinsic factor.

The varied nature of biological explanations stipulates the ontological gap between mechanism and organism. The reason behind this biological uniqueness is the play of life without which an organism is nothing but mere physical and chemical organization. The nature of biological explanations is embedded with the ontology of life. We are unable to define life because of the practical impossibility to determine its ontology. To recognize the *from within* nature of organismic action, let us consider the example of *Turritopsis dohrnii* - the immortal jellyfish. The jellyfish chooses back its sexually immature stage instead of facing the possible death. This revert-back behaviour justifies its immortal nature. No known organism other than jellyfish exhibits this choosing back behaviour so that the causality behind this phenomenon resides with the organism itself. The genetic makeup of jellyfish where the program for this behaviour is encoded exists inside of the organism. The action, therefore, comes *from within*. The discussion has brought us to the conclusion that the teleological

nature of an organism is relative to its immanent inner conditions i.e. relative to the immanent causation. Immanence, hence, can be considered as the intrinsic state of a natural entity, say organism, where actions take place without any external mediation.

6. Conclusions

The organismic self-actions are problematic to Mechanists not because biological entities are mysterious natural kinds that exist outside the box. Rather organisms possess invariable ontological differences from machines regarding causality as well as teleology. Addressing organismic aspects with Mechanistic parameters vindicates the role of downward causation and reduction. That eventually takes us into the ontology of life which plays an intrinsic role in the organismic action. Immanence becomes analogous to the state of nature from where, as Possenti says [12], actions come *from within*. The causal-inwardness in Biology legitimizes the possibility of an immanent action in nature. By exhibiting the biological way of understanding, we eradicate the possibility of external mediation both in the physical and metaphysical sense. What has been arrived from the discussion of *from within* nature of the action is an understanding of the root of Metaphysics associated with the concept of organism. The indeterminism concerning the conditions of existence (ontology) gives the shroud of metaphysics to the organism. More specifically, the feeling of Metaphysics is thus a result of our epistemological incapacity to determine the ontology of the intrinsic natural cause that instigates immanent action in the organism.

Apart from the accidental stories, physicalism with its methodologies has superseded the unstable myths about the reality of natural phenomena. However, the organism with its unique nature perpetuates biological inquiry away from the Mechanistic framework. It is not the case that Biology forbids the validity of physicalism as such but instead it unobtrusively impedes the superimposition of upstanding methods of Mechanism in Biology. The organism act in such a way that it is the edifice of its actions regarding causality and teleology. Instead of providing support to the mechanical nature, the yet to ascertain principle of chance in Biology dictates the requirement of an understanding of living phenomena from the point of immanent action. It is not the final solution to the problem but it can be an unavoidable possibility in the ontological enquires in the philosophy of Biology. All these together accentuate the entangled apperception of a natural state which remains ontologically real in every biological inquiry.

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