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Life as Paradigm of Knowledge. What Use of Hegel in the Age of the Environmental Crisis?

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Abstract: This paper aims to show to what extent the normativity of organic life that emerged from the natural sciences of Hegel's time influenced the structuring of his speculative approach. In the first part, the eighteenth-century paradigm shift in the natural sciences is investigated as marking the transition from a physics-based worldview to a biology-based one. This shift argues strongly against the reduction of nature to mechanism and provides an adequate model for analysing the functioning of all other complex systems and, above all, the functioning of reason. In the second part, the consequences of such a shift are evaluated with respect to Hegel's idealism, especially in relation to the categories of organism and purpose. They are the core elements for understanding not only the mode of living but also that of thinking. In the last part, we identify Hegel's philosophy as a "living ontology," an ontology that keeps pace with reality by modifying its categories accordingly. From this point of view, Hegel's idealism can be compatible with a new idea of the relationship between human beings and the environment, in the direction of a relational ontology. The paper then focuses on the legacy of this re-reading of Hegel's philosophy in the contemporary debate on ecological thinking that attempts to answer the question raised in the discussion on the environmental crisis and Anthropocene.

Keywords: Mechanism; living ontology; relational ontology; environmental crisis; Anthropocene; Hegel.

I. Introduction

Why link Hegel's philosophy to the Environmental crisis debate? Recent discussions in environmental studies have drawn attention to the need to rethink the relationship between human activities and the environment, so as not to make it impossible for human beings to survive in the future. This means abandoning the idea of human supremacy, not only over other living beings, but also over the non-living.

From a philosophical point of view, this overcoming requires coming to terms with a long tradition of thought that finds a central point in Hegelian philosophy. Indeed, Hegel's absolute idealism has been identified as one of the main culprits behind the idea of the supremacy of the spirit over nature, and of an epistemology that would have subordinated the sciences of nature to those of the spirit. Should we therefore abandon all

the conceptual tools offered by his philosophy? In other words, must we today completely reject the capacity of his thought to think complexity? We believe instead that Hegel's philosophy, reread from a different perspective, can still offer conceptual tools that enable us to overcome the epistemological and ontological impasse before which the current environmental question confronts us.

This article will therefore start (1) with a historical reconstruction of the debate on the natural sciences in Hegel's time, in order to show the influence it had on his system of thought. In the light of this reconstruction, (2) we will show how Hegel seriously considered and used the categories of the new life sciences. On this basis, (3) we will attempt to demonstrate how a new epistemological and ontological perspective can emerge from Hegel's philosophy. This new perspective can offer us the opportunity to reconceptualize the relation of the human being with the planet. From an epistemological point of view, through to its systematic perspective and his idea of a new form of reason (intendend not as *Verstand*, but as *Vernunft*), Hegelian philosophy can offer a model for overcoming the division between the natural sciences and the humanities; from an ontological point of view, the proposal of a relational ontology (as presented in his *Naturphilosophie*) can demonstrate the essential intertwining between the human being and nature (non-human but also non-living).

II. Modern Rationality's Aporias

In the nineteenth century, there was an increased awareness that the old theoretical categories were no longer sufficient to understand the complex structure of life, and that (different) tools were needed to grasp its exceptionality. This new awareness has a decisive impact not only on the sciences but also on how reason itself is understood.

Isaac Newton's approach typified the modern rationality model. In 1687 his first edition of *Philosophiae Naturalis Principia Mathematica* was published. With this work, Newton explains the objective of his physics, or rather, as he says in the language of his time, of his philosophy (sc. *natural philosophy*). In contrast to Descartes' mechanics, Newton considers the study of motion and the forces essential to the knowledge of bodies.[1] The latter marks the difference between Cartesian physics – built on purely mechanical movements, and Newtonian physics – carried out by applying physical-mathematical laws.[2] In this regard, while rescuing matter from the deformations produced by subjective knowledge, Newtonian physics attempts to continue the work begun by

1 "The ancients studied this part of mechanics in terms of the five powers that relate to the manual arts [i.e., the five mechanical powers] and paid hardly any attention to gravity (since it is not a manual power) except in the moving of weights by these powers. Since we are concerned with natural philosophy rather than manual arts, and writing about natural rather than manual powers, we concentrate on aspects of gravity, levity, elastic forces, resistance of fluids, and forces of this sort, whether attractive or impulsive" (Newton 1999, 382; on this see Neuser 2017, 33–42).

2 On this topic, see in particular the *General Scholium* in the Preface to the second edition of the Newtons's *Principia* 1713 (cf. Newton 1999, 939–944).

Galileo. Sensibility could well serve to give an account of the existence of an object, but it was up to mathematics to give access to the knowledge of bodies. In the conclusion of his *Preface* to the *Principia*, however, Newton pushes his gaze one step further, hinting how the principles developed by his mechanics could be applied to explain all natural phenomena:

> For many things lead me to have a suspicion that all phenomena may depend on certain forces by which the particles of bodies, by causes not yet known, either are impelled toward one another and cohere in regular figures, or are repelled from one another and recede. Since these forces are unknown, philosophers have hitherto made trial of nature in vain. But I hope that the principles set down here will shed some light on either this mode of philosophizing or some truer one (Newton 1999, 382–383).

Newton's work marks a real watershed which affected not only scientific discourse but also that of philosophy in the following centuries. This was the case in at least two respects: the first can be linked to the model of the relationship between the forces, which lays the foundation of modern rationalism up to the nineteenth century *Naturphilosophie* – what Hegel calls the "play of forces" (Hegel 2017, 88), and which relies on oppositional dynamics for the explanation of phenomena. The second order of motives is more far-reaching and determines the very status of modern reason. As is well known, in the *General Scholium* to the second edition of his *Principia*, the one that contains the famous formula *Hypotheses non fingo* (Newton 1999, 943), Newton configures a completely new form of rationalism, claiming that science does not have to respond to the "why" but only to the "how" of phenomena. In particular, although he would rely on the divinity as guarantee for the order of the universe, he points to the knowledge of the limits of reason as the best way of making use of rational instruments.

The Newtonian position pervades eighteenth-century rationalism and famously seeps through Kant's idea of reason, who not only accepts the invitation to apply mathematical knowledge to the study of all natural phenomena,[3] but – even more radically – is deeply persuaded that one needs to establish the "limits" of reason also in the philosophical sphere (on the relationship between Kant and the sciences, cf. Friedman 2015). Even though he perceives its insufficiency, Kant remains anchored to a conception still burdened by the physical-mathematical knowledge. And yet, his critical reformulation, which overcomes the demands of rationalist metaphysics in the name of an anti-dogmatic reason, and implies the inadequacy of Newtonian science, is precisely the speculative formulation of the need for a further transition.[4]

3 In § 75 of the *Critique of Judgement* Kant states: "It is, I mean, quite certain that we can never get a sufficient knowledge of organized beings and their inner possibility, much less get an explanation of them, by looking merely to mechanical principles of nature" (Kant 2007, 228).

4 If in the *Allgemeine Naturgeschichte und Theorie des Himmels* (1755) Kant was very near to Newtonian Physics and to its philosophical implications, in the dissertation, on *Metaphysicae cum Geometria Iunctae Usus in Philosophia Naturali, Cuius Specimen I. Continet Monadologiam Physicam* (Newton 1756) he contrasted Newtonian methods of thought with those of Leibnizian philosophy prevalent in German universities at the time. However, even the Leibnizian conception would show

If Newtonian mechanics had worked to explain the movement of the planets, it did not seem entirely adequate to grasp the functioning of the living. The question that Kant hands over to the next generation is therefore the same that had accompanied him since his first "pre-critical" works: what form must reason have if it is to know living bodies and living forces?

III. Life as Problem

At the end of the eighteenth-century, Kant left the Newtonian model on shaky legs. No Newton of the "blade of grass" appeared[5]. Furthermore, the introduction of the point of view of biology and its object, life, had a widely disruptive effect, in particular on German idealism.[6]

In the transition from the notion of forces and their opposition, fundamental in cosmological and inorganic physics – reflected in a form of reason based on opposition and distinction, to that of life – based instead on the organic relation, the physical-mathematical system loses its hermeneutic capacity. It is replaced by the biological model, with the ideas of complexity and fluid relation. This shift determines a matching heuristic displacement: while Kant incorporates the ideas of law and validity *a priori* in his model of knowledge, idealism in general, and particularly Hegel's, is connected to biology and biology's claims on the centrality of the living being. It therefore advocates a plastic interpretative universe and a dynamic form of knowledge. In the debate of those years – see for example that between Fichte and Jacobi (see Ivaldo 2016; Sandkaulen 2019) – what is widely discussed is precisely the claim to truth of speculative inquiries concerning life, with respect to its contingent and dynamic nature, which escapes the configuration of mathematical truths. In this sense, at the end of his introduction to the philosophy of nature in the *Encyclopaedia*, Hegel states that life is difficult for the intellect to understand – the easiest thing to comprehend is the abstract, the dead (see Hegel 2004, § 251). In so doing, he acknowledges the need within the life sciences for a new understanding of rationality. Life poses a particularly wide problem: it not only represents a challenge for the individual sciences, but requires a new form of understanding, a new model of cognition. According to Hegel, it is essential to outline an idea of reason which comprehends living phenomena in their changing, in the historical dimension of their

its insufficiency, requiring Kant to take a further theoretical step. For a detailed analysis of Kant's early writings on these questions, see (Cafagna 2020).

5 As Kant states: "Indeed, so certain is it, that we may confidently assert that it is absurd for human beings even to entertain any thought of so doing or to hope that maybe another Newton may some day arise, to make intelligible to us even the genesis of but a blade of grass from natural laws that no design has ordered" (Kant 2007, § 75, 228).

6 This passage is explicitly stated in one of Hegel's early fragments, drafted between 1796 and 1797 with Hölderlin and Schelling, *The Oldest Systematic Program*, in which he writes: "It does not seem as if present day physics could satisfy a creative spirit such as ours is or should be" (Hegel, Schelling, & Hölderlin 1987, 161).

becoming, facing up to the "epistemic opacity" that previous forms of rationalism have tried to expel from rational knowledge, consigning it to the status of de facto truth, or relegating it, as Kant did, to the "incomprehensible mystery" (Hegel 2010, 678).[7] In order to overcome this abyss, as substantiated by the whole contribution of modern rationalism, the solution is identified in the configuration, or to put it in Goethe's words, in the "morphology" of the living being, that is to say, in life that contains in itself the form of its knowability. Kant himself had opened the door to this solution, in the pages of the Third Critique dedicated to organised natural phenomena: little or nothing can be said about organised phenomena if we consider them as an analogue of art, but "We might perhaps come nearer to the description of this unfathomable property if we were to call it an *analogue of life*" (Kant 2007, § 65, 203).[8]

We can recall that Goethe, a few years earlier, had stated that the principle of knowledge of the living could only be found in life's way of being: "A thing that exists as a living being cannot be measured by anything outside of it, but – if something like that were to happen – it should be its own measure" (Goethe 1964, 6–8).

In all these attempts, a process of immanentisation of the principle of reason is set in motion, which, unlike the Newtonian tradition, leaves no hidden cause outside – hence not much room for the "limits" to reason – but rather shifts all explanations within the phenomena themselves. This is also the distinguishing feature of Hegel's approach to reason, at variance with modern reason, including Kant's understanding of it.

In Hegel's work one can witness to the birth of a new form of reason which is the result of his ability to read the discoveries of the life sciences (see Illetterati & Gambarotto 2020). The biology of those years, partly taking up the theories of vitalism, considers life as a form of nature that carries within itself a cognitive quality, even in its simplest forms. The paradigmatic model of Hegel's understanding of reason is precisely this capacity of life to contain both the natural and biological norms of behaviour as well as the cognitive ones, a type of relationship that also allows us to reconcile nature with spirit, and thought with being.

7 About nature and its "organised products" Kant speaks of an "unfathomable property" (Kant 2007, § 65, 203).

8 The purpose of the organism is not in fact comparable to the external purpose of the artist. As we read in the *Analytic of Teleological Judgement*, there is an objective and intellectual finality that is that of geometry (different from the subjective and aesthetic finality of beauty); there is the objective and material finality that we find in nature, linked to the relationship between cause and effect, which can be summarized in terms of utility or convenience where the effect is simple material for the art of other possible beings of nature. This is a relative and external purpose. Finally, there is a last type of purpose whose form is not determined by simple natural laws and therefore knowable by the intellect but presupposes the concepts of reason. In this case, Kant sums up, the cause is the effect of itself, this purpose is that of living organisms (cf. Kant 2007, §§ 63–64, 194–200; see also Ginsborg 1997, 329–360).

IV. Hegel's Critique of the Scientific Method

In response to the Kantian inherited question, Hegel claims that reason has complete access to the object of knowledge. He thus dissolves entirely the distinction between subject and object, logic and ontology, science, and metaphysics. Hegel's proposal tries to overcome the Kantian distinction between universal scientific knowledge and at best action-oriented wisdom, and to "rethink" the status of scientific knowledge. The result is that the kind of reason standing behind the knowledge of science and that of philosophy is one and the same thing. This means that the system of sciences is never assessed separately from a unitary and dynamic vision of reason. Nevertheless, this position does not lead to an anti-scientist, idealistic position, or one in which science is understood derogatively.

The Hegelian project aims to develop a new form of understanding capable of grasping the fluid movement of thought in the same way that in those years, physicians, physiologists, scientists were trying to understand living beings. To this end, he uses life as a model of understanding, which allows him to build a bridge between the analysis of the sciences of the living and those of thought. He does so on the basis of the notion of life as key, shared norm of comprehension. It would therefore be a mistake to attribute to Hegel's idea of a broader and living reason the arrogance of the narrow rationality of positive knowledge. On the contrary, Hegel warns against any form of instrumental reason that could only separate the subjective and objective site and compromise the integrity of knowledge.

For Hegel, there is no structural difference between philosophical and scientific reason, but only a regional one, inasmuch as scientific reason works on a more circumscribed field of knowledge, as is made clear in the chapter of the *Phenomenology of the Spirit* dedicated to observational reason.[9]

In the first pages of this chapter, Hegel analyses the leading methods of the sciences of his time: observation, experimental approach, rule. Fully aware of its insufficiency, the observing reason feels restless, "the observing, in clinging tenaciously to motionless self-consistent being, must see itself here teased with cases that rob it of every determination, which silence the universality it has reached, and which set it back again to unthinking observing and describing" (Hegel 2017, 147). The restless labour of this form of scientific reason, which consists of constant and infinite research, is linked, at this stage, to the lack of awareness of the equality between the observed object and the observing consciousness. In observation, as in description, it is not possible to go beyond the continuous reopening of the distance between the individual dimension, typical of empirical observation, and the aspiration to the universal, responding to the need to trace laws.

In scientific observation – what Husserl would later call "naturalistic attitude" – the

9 Hegel's position on the character of empirical research, experiment, and classifications proves, according to Cinzia Ferrini, his active participation in the scientific debate of his time (cf. Ferrini 2009, 116–118).

world is never approached naively, but is rather always already framed within pre-existing norms. It is indeed impossible to set aside the already structured nature of the object. Consciousness – Hegel writes – forgets that the object is already essentially determined. Moreover, observing consciousness is never passive, but rather always actively at work. A naive description cannot in fact exist. The encounter between object and consciousness is never a primordial encounter, but always presupposes the sharing of an original horizon in which consciousness and the observed world are co-extensive. This is where the model of the living comes to the fore and allows us to understand Hegel's strategy to overcome the fracture between observed and observing. Just as in living nature the distinction between organic and inorganic is certainly assumed but not real, the same also happens with knowledge. Every separation assumed in nature between life and non-life is an artificial construction; similarly, Hegel says, every attempt to think of subjective reason as separated from the world is the result of an *ex post* operation, of an artifice that separates what is originally united in nature.

In the *Phenomenology,* the critique of the epistemic model of the sciences paves the way to Hegel's comprehensive criticism of the spirit of early modernity – which encompasses both the sciences and Kantian subjectivism – as what should be eluded at all costs.

The objective of immediate observation reveals itself as an intellectual construction. Physics cannot really go beyond the naive faith of the old metaphysics and remains entangled in an insoluble contradiction between the affirmation of empirical differences and an alleged aspiration to the universal. The critique of the method of positive sciences is therefore the critique of a naturalisation of concepts, in opposition to which, in the spirit of the sciences of his time, Hegel advocates the model of living reason.

Hegel's critique of the status of the observational and descriptive sciences has been read by later tradition as Hegel's retreat from the empirical and scientific plane to the metaphysical or spiritual. Yet we can now see that it represents one of the most important contributions of the dialectical approach to scientific knowledge. As many recent studies have confirmed (Latour 1991; Stengers 1993), for Hegel it is not possible to have scientific knowledge of phenomena without considering, in addition to the empirical-observational dimension, the social, cultural, anthropological implications.

V. Elements for a Living Ontology

If we read Hegel's critique of the empirical sciences in this light, we can appreciate the epistemological shift he proposes. He determines a shift in structure, notions and methods, an "epistemic change." Or, as Foucault would say, a new *episteme*: in the wake of biology and the sciences of the living, Hegel elaborates a new model of understanding that is based on a self-reproductive and plastic reason. This new model also requires a conceptual redefinition: new categories emerge that determine a different set of

terminological tools (dialectical relation, determinate negation, speculative proposition). It also implies a different way of interpreting the relationship between the living and the non-living. The model developed by Hegel is not based on opposition but on intertwining, as the model of the organism (in which all the elements are interrelated) shows. However, this is not just an epistemological shift, but a proposal that requires a different ontological approach (on this: Gambarotto & Illetterati 2014; Sell 2013; Achella 2015; Achella 2022). Compared to the merely instrumental use of the notion of an organism, the ontological view or 'ontologisation' of the organism insists instead on its intrinsic properties (on the notion of organism in Hegel see: Breidbach 1982; Schlanger 1995; Wolfe 2004; Wolfe 2013; Gambarotto & Illettterati 2014), makes a strong case against the reduction of nature to mechanism and provides a suitable model for the analysis of the functioning of all the other complex systems. This shift towards the organism also determines a different idea of relation, whose essence now becomes, as Hegel states in the *Early Writings*, to be one with the excluded. The concept of organism thus incorporates the model of a new form of rationality. Organism and reason, in their new meaning, almost come to coincide. In this sense, biology has a strong epistemological output, based on the modelling of the concept of organism, hence of living, as a mode of relation which is valid for other areas of knowledge as well. The extension of the concept of organism to spheres that are not directly pertinent to it, such as, for instance the historical and political world, even becomes a criterion of scientific reliability when it comes to studying human phenomena as rigorously as the natural sciences do.[10] Concomitantly, the embryological research of those years shows that an organism has an ontogeny and a phylogeny (Gould 1977). Knowing the organism is a complex and plural cognition. It therefore implies not only an understanding of all the forces that animate it from the outside (the school of Montpellier), its constitution (Preformation or Methamorphose), its ontogeny, but also the effects produced by the environment (Lamarck, Treviranus), evolution (Transformism), and history (Buffon).

By appropriating a relational ontological approach characteristic of classical German philosophy, Hegel affirms a complete rethinking of the model of reason that was still tied to abstract or empirical reasoning and based on binary and oppositional distinctions. He therefore proposes a holistic comprehension of the nature and of the spirit.

The model of the organism refers to, and legitimises, a different idea of purpose. Reason, like the organism, has within itself the realisation of its own aim. The Kantian idea of the "autonomy of reason" now acquires a radically new meaning. The error of modern thought, according to Hegel, is separating nature from reason, necessity from purpose, science from philosophy/metaphysics. For Hegel, it is an unjustified self-limitation of reason to think that we cannot access nature, which is nothing but the alienated reason itself – that is to say, reason broken down by a form of analytical judgement, which is

10 Georges Cuvier's work is exemplary in his attempt to combine organism and rationality, so much so that his theories, bearing testimony to the transition phase from fixism to evolutionism, are particularly appreciated and taken up again, just as a rational model, by Hegel.

useful for determination, but partial as to the whole process of knowledge. As we read in the *Logic*, granted that the relation of purpose judges *objectively*, it is not *judgement*, but *syllogism*.[11] This entails that the fundamental question concerning the structure of the living being is a question that must be solved both logically and ontologically. A full understanding of Hegel's upheaval of Kant's notion of purpose leads then to a fuller assessment of the radical change in epistemic perspective. While disentangling purpose from intention, hence from subjective representation, Hegel establishes the speculative and no longer merely representative nature of his philosophical inquiry.[12] *Lebendigkeit*, or immanent vitality, becomes the cipher of this new form of thought, also known as dialectics, which achieves the remarkable result of retrieving the concept not only from the ineffability of intellectualistic metaphysics, but also from the scepticism of critical subjectivism.

The genesis of a new logic, which Hegel defines as subjective logic, is thus intertwined with the biology that was developing at the time, and that offered the philosopher a new way of conceiving of being, knowledge and their relationship. The plan of logic intersects, in this formative itinerary, with that of the living. Hegel's logic can be understood as a "Bio-logic," as a cognitive logic within life. It works as an epistemic model, as a normativity for knowledge, but above all as an ontological model. The speculative and the biological level seems to be welded together in an exemplary and evocative way.

This combination undoubtedly has an impact on the status of scientific knowledge. In this regard, one should not dismiss as incidental that in the pages of *The Science of Logic* dedicated to the idea of life Hegel dwells on an anthropological theory that is very different from the physiological anthropology typical of his time. Whereas in the *Phenomenology* Hegel speaks against the method of science as one that uses reason in a still partial way, in these pages Hegel clearly points to the relapse of his philosophical analysis within the realm of the sciences. However, while rejecting any reductionism, he outlines a new way of knowledge.[13]

This involves the idea of a human reason that is not separate from natural reason. On

11 "But for that reason, the connection of purpose is not a *reflective judgment* that considers external objects only according to a unity, *as though* an intelligence had given them to us *for the convenience of our faculty of cognition*; on the contrary, it is the truth that exists in and for itself and judges *objectively*, determining the external objectivity absolutely. The connection of purpose is therefore more than *judgment*; it is the *syllogism* of the self-subsistent free concept that through objectivity unites itself with itself in conclusion" (Hegel 2010, 656).

12 For a detailed discussion of life's role in Hegel's reformulation of Kantian judgment see Ng (Ng 2019). She is however not interested in the role of life sciences in Hegel's reformulation.

13 This distinctive feature of Hegel's work has been grasped by George Canguilhem: "Mais un philosophe comme Hegel n'a pas refusé ce que Kant s'est interdit. Dans la *Phénoménologie de l'Esprit* aussi bien que dans la *Realphilosophie* d'Iena ou la *Propédeutique* de Nuremberg, le concept et la vie sont identifiés (…) La vie, dit Hegel, est l'unité immédiate du concept à sa réalité, sans que ce concept s'y distingue (…) En un sens donc le vivant contient en lui-même la vie comme totalité et la vie dans sa totalité. La vie comme totalité, en raison du fait que son commencement est fin, que sa structure est téléologique ou conceptuelle. Et la vie dans sa totalité, pour autant que produit d'un producteur et producteur d'un produit, l'individu contient l'universel" (Canguilhem 1966, 203–205).

the contrary, there is no substantial difference between human reason and natural reason, only a greater refinement of the former compared to the latter. This entails overcoming the separation between the knowledge of the natural sciences and that of the humanities, but also the idea of an 'ontological difference' between human beings and nature.

This leads to the following question: How can this Hegelian repositioning be useful for confronting the phenomenon called Anthropocene?

VI. With Hegel beyond Hegel: Insights into the Anthropocene

In this last section, I will try to answer this question by focusing on three aspects that can place Hegelian analysis in continuity with the reflections that have been developed in recent years within feminist movements in the face of the ecological crisis and the emergence of the so-called Anthropocene, and that can offer useful tools for confronting these issues.

(1) The first aspect is the contribution to overcoming the sharp division between the human and non-human. The biocentric dynamic developed by classical German philosophy and further developed by Hegel can help us to bridge the distinction between *bios*, as human life, and *zoe*, as animal and non-human life (on this topic see Grosz 2011). The shift from the human subject to a subjectivity that Hegel, on the Aristotelian model, also finds in plant and animal nature, makes it possible to broaden the level of agency. It also shifts the focus from the human being as the sole legislator – an attitude proper to the Kantian tradition – to life as an active and autonomous subject endowed with its own legality and an internal teleology independent of the human subject.

As the feminist tradition has shown, this shift can nevertheless have some problematic consequences. Once the discourse is linked to life and human beings are reduced to their natural aspect, all differences disappear, and we return to an ontology that neutralises or naturalises differences.[14] The relational character of Hegelian ontology, based on the idea of life as an indistinguishable interweaving of *bios* and *zoe* leads in the direction of a non-anthropocentric perspective that nevertheless does not deny the anthropologically bound structure of human beings, their differences and values. In this way, Hegel breaches the fences between the human and non-human but still safeguards human specificity by avoiding its total naturalisation.

(2) Hence the second achievement and benefit of Hegel's thought: the eradication of soul-body dualism. Even for Hegel, anthropomorphism remains the specific embodied and embedded position of the human being, and the recognition of its situated nature is the first step towards overcoming naturalization.[15] According to this perspective, life is on the one hand always embodied and as such material, but on the other hand it is

14 Rosi Braidotti's understanding of nature as naturalisation of inequalities (Braidotti 2017, 22).

15 Cf. Braidotti's idea of a nomadic philosophy of radical immanence that foregrounds *embodiment* and *embeddedness* rather than detachment from the thinking organism (Braidotti 2017, 33).

also the bearer of cognitive instances. For Hegel, there is no fixed dividing line: there is no body without a soul, and the self does not articulate itself outside the body. It gives rise to what we might now call an embodied spirit (see Hegel's Anthropology 1830, § 389 and An). This movement towards transcending the rigid determinate structure is internal to nature itself. The transition is accomplished in nature. The mode of being proper to the subject, which we are accustomed to considering as human, finds its first real articulation in nature, and specifically in the animal organism. Hegel thus goes beyond the intellectualist and reductionist vision in one fell swoop, helping to go beyond all the traditional ontological and epistemological categories based on what we now call the binary paradigm.

The Hegelian position could therefore be related to more recent developments within feminist thought, such as agential realism.[16] It rejects a conception of the world based on 'separateness' and propose an epistemological perspective centered on ecological principles and an invitation to responsibility. As Elizabeth Grosz writes in her introduction to her work:

> I do not want to privilege ideality over materiality, but to think them together, as fundamentally connected and incapable of each being what it is without the other to direct and support it. Ideality frames, directs, and makes meaning from materiality; materiality carries ideality and is never free of the incorporeal forms that constitute and orient it as material (Grosz 2011, 12).

Thus, if we go one step further than Hegel, we can think of a material-ideal ontology that can offer another model of interaction capable of encompassing not only materiality but also the ideal intentional state that determines matter.

(3) The overcoming of the nature-culture divide can be linked to another Hegelian contribution. As Hegel points out in the passages devoted to habit, it is impossible to separate the corporeal from the spiritual, and the one inevitably arises from and thanks to the other. A similar direction seems to be found today in the crossing of fences proposed by Karen Barad's current agential realism, which invites us to rethink the nature-culture relationship in terms of 'exteriority within' (Barad 2007, 135). That is, they are co-implicated not because they are originally separate, but because in drawing their own boundaries they acknowledge the space of the Other. The definition of the one thus appears, albeit from the outside, essential to that of the Other. It is therefore a matter of getting through the illusion that nature and culture exist initially as separate, because reality is originally given as nature-culture. Their separation served to establish an idea

16 This 'vital' dimension of matter distinguishes the new feminist materialism from historical materialism. Whereas the latter saw matter as the product of human intentionality, and thus as the effect of practices and choices based on human agency in any case, the new feminist materialism recognises the existence of non-human agency. Now agencies do not represent individual elements, but live in mutual entanglement. Unlike the materialism of the dialectical tradition, which refers to the establishment of social and human relations, the new materialist feminism also penetrates the sphere of the non-human. The material and the discursive imply each other.

of objectivity that is still the basis of modern science, according to which there is an objectivity purified of cultural, social and political contamination. But it is not enough to gain a broader perspective of knowledge, as the current scientific orientation shows. It is in this direction that Karen Barad, and, as we have tried to show, Hegel always already invite us to overcome this separation, which is the prelude to any claim to hierarchization, prevarication and supremacy. It is, therefore, a question of returning to the idea of an interconnectedness that precedes any separation, not only on an epistemological level but also, more profoundly, on an ontological level. This is an invitation that, although in a different and distant context, is already fully understood in Hegel and can help us to adopt a new attitude towards the environment, as well as other life forms and animal species.

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