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Organism and Deformity

The Reception of Kant in Hegel's Philosophy of Nature

Hegel is arguably predicting the fate of his *Philosophy of Nature*, when in the *Introduction* he writes: „the philosophy of nature in particular is suffering from a very considerable lack of favor“.¹ As is well known, for many reasons Hegel's *Philosophy of Nature* can be taken as the most ignored part of Hegel's system. However, in the last thirty years, many significant studies concerning this part of Hegel's *Encyclopedia* have flourished, and the important role played by Hegel's philosophy of nature not only in the history of philosophy, but also within the realm of biological studies, has also been outlined.

It is worth remarking, in my opinion, that Hegel clearly indicates that, in order to restore the role of the philosophy of nature, the perspective of teleology has to lead the way; Hence, in order to determine whether Hegel's philosophy of nature ever could and should have a place in the present debate concerning the philosophy of science as well as biology, it is essential to start from his very notion of teleology. Clearly, while defining Hegel's notion of teleology, his relation with Kant shall come out as fundamental.

The relation between Hegel's and Kant's philosophy of nature has been interpreted in many different ways by the scholarly literature; in this paper, I support the claims of those scholars, such as Klaus Düsing, who have argued that, even considering Hegel harsh criticism of Kant's teleology, similarities are more numerous than differences.²

The main purpose of my contribution is, then, to provide further evidence to a very similar claim to that supported by Daniel Dahlstrom, who states that „Hegel's critical appropriation of Kant's natural teleology“ is intersected „in a fundamental way“ by the theoretical contexts of the contemporary biology.³ In order to fulfill my aim, I shall start with a discussion of the relation between Kant's teleology and Hegel's philosophy of nature. I would like to show that Hegel radicalizes some fundamental elements of Kant's teleology, notably (and this could be surprising according to Hegel's perspective) the subjectivity of purposiveness, as reworked in the context of Hegel's metaphysics of the infinite subjectivity displayed in the *Science of Logic*. In order to provide a full argument for this point, I will refer to the issues of deformity and disease, based on the firm belief that these specific issues may provide an operative lens through which analyzing Hegel's notion of organism.

I will thus take into account three aspects, and structure my paper accordingly: first, I shall compare the two definitions of organism given by Kant and by Hegel; secondly, I shall make reference to the meaning they assign to deformity and disease and, finally, I shall briefly comment on the possible effects that a discussion of Kant's and Hegel's teleology may entail in the contemporary debate in philosophy of science. I shall notably take into account only one of the several passages in Hegel's works, where Hegel's reception of Kant's teleology can be tracked down, and I won't refer to the *Differenz Schrift*, nor to the *Phenomenology*, nor to the *Science of Logic*; I shall limit my discussion to some paragraphs of the *Philosophy of Nature* in the *Encyclopedia* of 1830.

1 G. W. F. Hegel, *Philosophy of Nature*, transl. by M. Petry, London 1970, 191.

2 Klaus Düsing, *Naturteleologie und Metaphysik bei Kant und Hegel*, in *Hegel und die „Kritik der Urteilkraft“*, ed. v. H.-F. Fulda und R.-P. Horstmann, Stuttgart 1990, 139–157.

3 Daniel Dahlstrom, *Hegel's Appropriation of Kant's Account of Teleology in Nature*, in Stephen Houlgate, *Hegel and the Philosophy of Nature*, New York 1998, 181.

1 What an Organism is

In the Addition to § 245 Hegel defines the „true teleological view“ by reference to Aristotle as what „regards nature in its proper animation as free, and is therefore the highest view of nature“.⁴ Some lines before he gives vent to criticism by stating that „the teleological interpretation, which was formerly so popular, was certainly based on the relation to spirit; it limited itself to external functionalism however, and so confined the significance of spirit to finite and natural purposes: it has become discredited as a way of indicating the wisdom of God“.⁵ Hegel here has probably in mind Spinoza's teleological theories, to which he constantly refers polemically. Hegel's criticism is however explicitly addressed, here as in many other passages, to Kant's teleology. As is well known, Hegel criticizes the subjectivism of Kant's teleology and he reworks it in connection with its own dialectical system. It is however also true what Düsing claims by saying that „of all the doctrines elaborated in Kant's three critiques, none stands closer in Hegel's eyes to his own position than those formulated in the Critique of Teleological Judgment“.⁶ Furthermore, Valerio Verra corroborates this point by stating that Hegel acknowledges Kant's credit while reawakening teleology, although he does that his own way.⁷

The evidence that Hegel's philosophy of nature is a peculiar appropriation of Kant's teleology is provided by the notion of organism. As is well known, Hegel's Philosophy of nature is divided in three parts: mechanics, physics and organics. In the organics, the idea is considered within the determination of subjectivity, in which all the distinctions are connected to the ideal unity that has found itself and that is for the self. Hegel discusses here the notion of necessity, and he states that necessity has now to be considered as something internal to the object and according to a teleological perspective. However, coherently with the criticism he has elaborated in the *Introduction*, the reason finds itself as an extrinsic purpose, that falls back into another intellect from which it depends.

Kant, in fact, grounds the principle of inner purposiveness in the finite character of the human intellect and in its inability to make sense of the distinctive behavior of organic entities. As Kant writes in his *Introduction to the Critique of the Power of Judgment*, the teleological explanation derives from the need of the subject to comprehend nature and it cannot find its justification in God⁸. Hegel, on the contrary, adopts Kant's idea of an intuitive understanding as the description of the way we comprehend organic entities.⁹

It is not surprising, then, that Hegel criticizes Kant's solution to the antinomy of the teleological judgment. Kant notoriously finds the solution of the antinomy by recognizing that mechanism and teleology are subjective principles of the reflective judgment and not statements about the objective constitution of things.¹⁰ Kant thus solve the antinomy by stating that the teleological judgment, being a reflective judgment, is only regulative and not constitutive. According to Hegel's perspective this solution cannot be accepted. As he writes in his *Science of Logic*, Kant's resort to maxims and subjectivity „leaves the fundamental contradiction in place“, since Hegel maintains that the contrast between mechanism and teleology does not simply concern our modes of understanding natural objects, but rather their ontology.¹¹

This criticism certainly marks a fundamental and irreducible difference between Kant's and Hegel's perspectives. It is however also true what Verra points out: as Hegel defines the natural

⁴ Hegel, *Philosophy of Nature*, 196.

⁵ Ibid.

⁶ See Dahlstrom, *Hegel's Appropriation*, 167.

⁷ Valerio Verra, *Introduzione*, in G. W. F. Hegel, *Scienza della logica*, Bari 1984, 44.

⁸ See Kant's criticism against the physio-theology in § 91 of the third Critique.

⁹ See Dahlstrom, *Hegel's Appropriation*, 175.

¹⁰ See *ibid.*, 176.

¹¹ Ibid.

purpose as a purpose of reason, he applies the scientific notions to the organism, despite the firm belief that it is impossible to observe its constitutive laws. The laws employed to explain nature are not real, they are not actually present in the objects, and the notion of law is here no ontological truth¹². This is the most important point for my argument, and it is also the element that assures the continuity between Kant's teleology and Hegel's organics: even if Kant's subjectivism is rejected, teleology remains an heuristic explanations grounded not in the natural objects but in reason.

This theoretical assumption has meaningful consequences for the definition of the organism. At § 65 of the *Critique of Judgment*, Kant defines the organism as

a product of nature [in which] each part is conceived as if it exists only through all the others, thus as if existing for the sake of the others and on account of the whole [...] it must be thought of as an organ that produces the other parts: only then and on that account can such a product, as an organized and self-organizing being, be called a natural end.¹³

In this definition two elements are relevant to my argument: 1. the relation of each parts to the whole; 2. the organism as self organized being and natural end. These elements lead Kant to one claim that Hegel really appreciates: „one says far too little about nature and its capacity in organized products if one calls this an analogue of art [...] perhaps one comes closer to this inscrutable property if one calls it an analogue of life“. This very idea is made radical by Hegel; Kant, instead, weakens it with some cautious additions: „but then one must either endow matter as mere matter with a property (hylozoism) that contradicts its essence, or else associate with it an alien principle standing in communion with it (a soul)“.¹⁴ Such an understanding of the organism in analogy with life itself is clearly not much different from that advocated by Hegel:

in the abstract Notion of the organism, the existence of particularities is compatible with the unity of the Notion, for these particularities are posited as transitory moments of a single subject“; only „living existence posits all particularity as appearance however, and so holds these gigantic members within a unity [...] because] life [...] in itself is a rounded totality, or its own object [...]. Kant had already determined living existence as constituting its own end.¹⁵

Through the previous comparison between Kant's and Hegel's notions of the organism, it is possible to isolate some common and fundamental features: 1) teleology is a regulative explanation of nature; 2) as a natural notion, the organism is a whole; 3) it is a natural end and it is a self-organizing being, that can be considered an analogue of life. It is then clear in what respect Hegel's view is an appropriation and a radicalization of Kant's teleology: life is an essential property of the organism, that can be explained only through teleology; teleology is rather an explanation grounded in reason, not in the object, and, although the real law of nature cannot be known, the teleological explanation may well be used just as an heuristic method. As Kant writes, the notion of purposiveness that defines the organism is a rational idea.¹⁶ Within the framework of this perspective, deformity and disease become a problematic topic deserving further explanation.

¹² Verra, *Introduzione*, 18.

¹³ I. Kant, *Critique of the Power of Judgment*, transl. by P. Guyer, New York 2000, 245.

¹⁴ *Ibid.*, 246.

¹⁵ Hegel, *Philosophy of Nature*, 11.

¹⁶ In the *Science of Logic*, Hegel's critique against Kant's subjectivism does not entail that teleology has to deal with the object: this is the element that mostly seems to set apart Kant's and Hegel's position from Darwinism

2 Deformity and Disease

While describing the organism, Kant writes that also deformity should be taken into account: „it is even good for us to consider in this light things that are unpleasant and in certain relations contrapurposive for us“.¹⁷ The solution adopted by Kant to the problem of deformity is quite simple and totally consistent with his idea of organism and teleology as previously presented: when a natural organism is observed (Kant has in mind the case of a tree), one may admire „the self-help of nature in the case of injury in these creatures, where the lack of a part that is necessary for the preservation of the neighboring parts can be made good by the others“.¹⁸

Along this line, Hegel argues, as I will show in details later on, that in the disease the injured part has to be brought back to the whole. Furthermore, Kant also admires

the miscarriages or malformations in growth, where certain parts form themselves in an entirely new way because of chance defects or obstacles, in order to preserve that which exists and bring forth an anomalous creature: these I mention only in passing, although they belong among the most wonderful properties of organized creatures.¹⁹

It is not known whether Kant could have read the studies on teratology, especially developed in France in the XVIII Century,²⁰ however the theoretical problem that occurs here is: if these phenomena may be mechanically explained as malformations, how can they be explained by teleology? Kant's solution is quite hasty, but convincing according to a teleological perspective:

if it is treated in this way [i. e. teleologically] then even what seems to the human being to be contrary to nature in his internal organization provides an entertaining and sometimes also instructive prospect on a teleological order of things, to which merely physical consideration alone, without such a principle, would not lead us.²¹

Teleology, by taking into account not the real laws of nature, but the explanations provided by reason, compensate for physics' inability to explain deformity and, by bringing back the part to the process of the whole, a therapy to the injury is possibly also found.

Hegel's discussion of deformity is not much different. Deformities, and also mutations can be teleologically explained by recognizing that malformations are defined merely through rational categories and they are caused by nature's inability to fulfill reason's Notions. As Hegel writes at § 250,

the difficulty, and in many cases the impossibility of finding clear distinctions for classes and orders on the basis of empirical observation, has its roots in the inability of nature to hold fast to the realization of the Notion. [...] Even within a specific genus such as mankind, monsters occur [...]. In order to classify such formations as defective, imperfect, or deformed, an invariable prototype has to be assumed, with the help of which we are able to recognize these so-called monsters' deformities, and borderline cases. This prototype cannot be drawn from experience, but has as its presupposition the independence and worth of Notional determination.²²

Based on the independence of the Notion of the organism from nature, it is possible to explain deformities and malformation, for Hegel as for Kant. Slightly different is the case of disease, discussed by Hegel at §§ 371–374. According to Hegel, the organism's disease is not defined by defor-

¹⁷ Kant, *Critique of the Power of Judgment*, 251.

¹⁸ *Ibid.*, 244.

¹⁹ *Ibid.*

²⁰ See Étienne Geoffroy Saint Hilaire, *L'histoire générale et particulière des anomalies de l'organisation chez l'homme et les animaux*, Paris 1832–1837.

²¹ Kant, *Critique of the Power of Judgment*, 251.

²² Hegel, *Philosophy of Nature*, 216.

mity, malformation or lack of parts, but rather by a lack of life. He claims that the disease arises when „the whole organic process exhibits itself as the successive course of the vital motion, i. e. fever“.²³ Also in this case, the disease is a particularization that has to be brought back to the whole, and the rational Notion is the only way to explain it. As Hegel writes, „it is only the firm foundation of the Notion which is able to lead the way through particulars, and make fully intelligible those features of morbid phenomena and methods of healing which seem extravagant and bizarre to those who are steeped in the externality of specific details“.²⁴ As Von Engelhardt points out, the disease is a disturb of the Notion of the organism that is explained by Hegel starting from the finiteness of the organism and concluding with the assertion of the genesis of the spirit.²⁵

The discussion of deformity and disease is therefore a paradigmatic case of Kant's and Hegel's theoretical approach to the philosophy of nature, and it shows the similarities of their interpretation of the teleological method; first, it proves that teleology is grounded not on a constitutive principle, but on a regulative one. Even though Hegel's view may be taken as a radicalization of Kant's teleology, they both support the idea that nature can be explained only by recognizing that the organism is a notion of reason. As to the specific case of mutations, this idea can be very significant for the contemporary debate in biology.

3 The Contemporary Debate in Biology

Several scholars have stressed that Hegel's model of the philosophy of nature is incompatible, or even opposite to Darwinism. It is meaningful, in my opinion, that what arguably sets apart Hegel and Evolutionism are precisely those fundamental elements that Kant's and Hegel's teleology have in common. The irreducibility of the organic processes to physio-chemical processes, the purposiveness of the organism, the anthropomorphism of the organism, and the refutation of XVIII Century Evolutionism earned Kant and Hegel a strong dismissal by the neo-Darwinism, as the leading theory of the contemporary debate in biology. However, useful input on this matter may be provided by briefly reviewing the work of the biologist Ernst Mayr, who invokes a distinction between teleonomy and teleology.²⁶ According to Dahlstrom, Mayr's work and his interpretation of teleology support the claim that Kant and Hegel could also contribute to the contemporary debate. In particular, in Dahlstrom's view, the teleological model elaborated by Kant and Hegel could explain some phenomena, such as random mutations of cells, that, as Kant would say, the mere mechanic-physical model is unable to explain. Dahlstrom concludes however his argument by stating that, in order to consider Hegel's model as valid within the contemporary debate, one requires „a willingness to consider the possibility that some organic behavior and, indeed, some mutations are based upon the purposive nature of the cell and not solely a matter of chance“.²⁷

This model can indeed play an important role within the contemporary debate of the philosophy of science, mostly devoted to the evolutionist paradigm. Such an approach is confirmed by the contemporary and interesting debate that some biologist and philosopher of science have elaborated around the notion of morphology. I refer, notably, to the studies of G. Toepfer, O. Breidbach, M. F. Meyer, P. McLaughlin, G. Schlosser, L. Nyhard and others.²⁸ In this debate not only Goethe,

²³ Ibid., 198.

²⁴ Ibid., 204.

²⁵ Dietrich von Engelhardt, „Grundzüge der wissenschaftlichen Naturforschung um 1800 und Hegels spekulative Naturerkenntnis“, in: *Philosophia Naturalis* 13 (1972), 290–315.

²⁶ Ernst Mayr, *Konzepte der Biologie*, Stuttgart 2005.

²⁷ Dahlstrom, Hegel's Appropriation, 182.

²⁸ Lynn K. Nyhard, *Modern Nature: The Rise of the Biological Perspective in Germany*, Chicago 2009; Olaf Breidbach, Federico Vercellone, *Anschaung denken. Zum Ansatz einer Morphologie des Unmittelbaren*, Paderborn 2011;

but also Kant's and Hegel's teleology can contribute to a definition of the biological method of investigation. Further encouragement is provided by the very history of biology in the 19th century, within the framework of which the role of deformities in teleology can actually show the relevance of Kant's perspective in natural sciences. It may suffice to take into account Gustav Wolff's work and his definition of a *Dystelologie*, which explains malformations through teleology,²⁹ or the intent of Timothy Lenoir while looking for a compromise between teleology and mechanicism through his *teleomechanismus*, which ends up elaborating a notion of the organism corresponding to both a natural principle and to a causalistic mechanism.³⁰ Through Lenoir's teleomechanismus, Kant's teleology is received also by some evolutionistic and developmental biologists, such asf. Burdach, A. Braun, C. G. Carus, K. E. von Baer, and particularly by M. J. Schleiden and E. Haeckel.³¹ It is not to be excluded that Darwin's approach could come into contact with the German classic philosophy through these authors and become aware of the heuristic relevance of a teleological explanation. The lively debate about morphology seems thus to confirm such an assumption, as well as the fundamental idea that teleology is an ambiguous and always newly defined concept, that can still greatly contribute to biological research methods, especially when it is deprived of ontological presumptions and connected to heuristic purposes only. Exclusively through this kind of method of explanation, deformations and random natural phenomena can be finally grasped by the finite human understanding. Within this framework, one of the sentences of the biologist Ernst Wilhelm von Brücke loudly resonates: „teleology is a lady without which the biologist can't live“.³²

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Georg Toepfer, *Zweckbegriff und Organismus: über die teleologische Beurteilung biologischer Systeme*, Würzburg 2004; Peter McLaughlin, *Kant's Critique of Teleology in Biological Explanation. Antinomy and Teleology*, Lewinston-Queenston-Lampeter 1990; Ernst Mayr, *Konzepte der Biologie*, Stuttgart 2005; Georg Schlosser, „Naturalizing functions - unity beyond pluralism?“, in: *Studies in History and Philosophy of Biological and Biomedical Sciences* 34 (2003), 685–697.

29 Gustav Wolff, *Leben und Erkennen. Vorarbeiten zu einer biologischen Philosophie*, München 1933.

30 Timothy Lenoir, *The Strategy of Life: Teleology and Mechanics in Nineteenth-Century German Biology*, Dordrecht 1982.

31 Alexander Braun, *Über die Bedeutung der Morphologie*, Berlin 1862; Friedrich Burdach, *Über die Aufgabe der Morphologie*, Leipzig 1817; C. G. Carus, *Lehrbuch der Zootomie*; Leipzig 1834; Matthias J. Schleiden, *Die Botanik als inductive Wissenschaft bearbeitet*, Hildesheim 1998; Ernst von Baer, *Über Entwicklungsgeschichte der Thiere*, Hildesheim 1999; Ernst Haeckel, *Generelle Morphologie der Organismen*, Berlin 1866.

32 Ernst W. von Brücke, *Vorlesungen über Physiologie*, Florenz 2013.