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Between Chemism and Life: Is Hegel's Teleology Misplaced?

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Abstract

In this paper, I raise a question concerning the place of ‘Teleology’ in Hegel’s system of logic and ask whether ‘Teleology’ as a logical category can and should come immediately before ‘Life’. I offer two main reasons to think that the category of ‘Teleology’ might be misplaced. The first and the indirect reason is inspired by a difference between the logical system and the Philosophy of Nature concerning the immediate precursors and the emergence of life as a logical category and real determinacy. In Hegel’s *Logic*, ‘Teleology’ is interposed between ‘Chemism’ and ‘Life’, while in his *Philosophy of Nature*, ‘Organics’ immediately follows ‘The Chemical Process’. Although the systematic order of the natural determinacies laid out in the *Philosophy of Nature* has no authority over the sequence of logical determinacies, and although there does not have to be a one-to-one correspondence between the logical categories and natural determinacies of Hegel’s system, I argue that the smooth transition from the chemical process to the self-sustaining totality of the geological organism in the *Philosophy of Nature*, is an incentive to consider a parallel transition in the logical exposition, which I show to be workable. The second and the direct reason is that Hegel’s category of ‘Teleology’ cannot but make a crucial reference to the initial determinacy of the category of ‘Life,’ without which it is inconceivable. By explaining why this reference is untenable and how, by contrast, the initial determinacy of life is conceivable independently of the process in which some subjective end is realized in objectivity through external means, I conclude that the logic of ‘Life’ and internal teleology should precede the logic of external teleology, allowing for a direct passage from ‘Chemism’ to ‘Life’.

In the *Science of Logic*, ‘Teleology’ finds its place as the third and final chapter of the section on ‘Objectivity’. This chapter comes right before ‘Life’, the first chapter of the section that deals with the logic of the Idea. In a few words, this paper questions this exact place of the category of ‘Teleology’ in the logical system. In other words,

it raises the question of whether ‘Teleology’ can and needs to come immediately before ‘Life’ as a logical category.

While such a problematization of the location of ‘Teleology’ in the logical system is the starting point of the following inquiry, it would not be meaningful without a discussion of ‘Teleology’ as a logical determinacy. Nevertheless, regardless of the specific content to be examined below, I find significant benefits in raising questions of this kind. Anyone who takes Hegel’s commitment to systematic philosophy seriously would expect to find the transitions between different categories compelling. I assume this claim is less controversial for Hegel’s system of logic. Questioning the location of a specific logical category can help the Hegel reader better understand the transitions to and from it as well as the character of the logical moves in the system. If such a query brings in considerations of the other two major constituents of the system, *Philosophy of Nature* and *Philosophy of Spirit*, it would also help us reflect on the relationship between those constituents of the system from a different angle, which could, in turn, contribute to the debates concerning Hegel’s *Realphilosophie*. In view of that, by problematizing the location of the logical category of ‘Teleology’, I intend not only to discuss the relationship between teleology and life, but also to contribute to our understanding of the architectonics of Hegel’s system of logic, and its relationship to *Realphilosophie*.

The question I raise here is prompted at least partially by a *seeming* discrepancy in the system. It arises from a difference between the *Science of Logic* and the *Philosophy of Nature* concerning the immediate precursors and the emergence of life as a logical category and a real determinacy. In Hegel’s works, life is a central theme; it appears at several different places, such as the Jena writings, the *Phenomenology of Spirit*, the *Philosophy of Spirit*, and Hegel’s lectures on aesthetics.¹ But it would not be wrong to say that life, as a systemic constituent, takes the leading role at two major places. In the logical system, life is the first form or determinacy of the Idea, while in the philosophical explication of nature, it signifies the final stage, which enables the transition to the domain of the mind, the *Philosophy of Spirit*.

The location where ‘Life’ comes onto the stage as a logical category is the same in the *Science of Logic* and in the first part of the *Encyclopaedia*, the *Lesser Logic* ‘Life’, considered as a logical category, is the first determinacy of the domain of the Idea, which follows from the logic of ‘Objectivity’. When one commits to the reading that the logical system can and must be conceived without reference to the domains of nature or mind,² then the logic of life can also be conceived in its own right, irrespective of how life can be realized in nature or spirit.³ Similarly, as the logical category of life is derived as an outcome of the preceding logical unfolding, it must be unintelligible without presupposing what paves the way for its derivation, including its immediate forerunner, the category of ‘Teleology’.⁴ That implies, however, the category of ‘Teleology’ is conceivable without any reference to ‘Life’. The second part of the *Encyclopaedia*, the *Philosophy of*

Nature, is the next place life appears as a systemic constituent in the system. Admittedly, in this second appearance, life does not come to the stage as ‘Life’ but as ‘Organic Nature’ or ‘Organism’. Furthermore, this section does not explicate a general concept of life, but deals with the major forms of life in nature, most importantly, plant and animal life.⁵ Nevertheless, in this part of the system, Hegel treats life as a real determinacy of nature, that is to say, as it is realizable or as it happens to be realized in nature as a natural determinacy.

The section on ‘Organics’ can justifiably be considered as ‘life as natural determinacy’ based on substantial similarities between both treatments of life. In the explication of the animal organism, in particular, one can see how the moments of the logic of life are incorporated in the moments of the explication of animal life, even though those moments are not so clearly distinguishable in the plant nature, as Hegel himself argues throughout his discussion of vegetative life.⁶ It is easy to identify the parallels between (i) the logical moment of the ‘Living Individual’ and the natural determinacy of ‘[Animal] Structure’, (ii) the logic of the ‘Life-Process’ and ‘[Animal] Assimilation’, and (iii) the logic of ‘The Genus’ and the ‘Process of the Genus’ in the *Philosophy of Nature*.

Another substantial yet broader similarity between the logical and natural accounts of life is that they both presuppose mechanical and chemical processes. In the system of logic, ‘Mechanism’ and ‘Chemism’ are treated as logical categories in their own right. Similarly, in the *Philosophy of Nature*, before arriving at the section ‘Organism’, Hegel covers ‘Mechanics’ and ‘Physics’, while the latter ends with an explication of the chemical process. Again, we can see how the mechanical object, the formal and real processes, the absolute mechanism, and the chemical process in the logical explication have parallel determinacies of nature that Hegel explicates in *Naturphilosophie*.

No doubt, there must be, and there are, fundamental differences in the logical and ‘natural’ treatments of mechanism and chemism, without which one of those treatments would be redundant. As is the case with life, *Philosophy of Nature* considers mechanics and chemistry not as logical relations irrespective of possible forms of natural embodiment but as real processes that can be realized in a spatio-temporal world. True, the system of logic is presupposed by *Realphilosophie*, the logical categories are identifiable in the constitution of the natural determinacies, and the logics of ‘Mechanism’ and ‘Chemism’ are instantiated by mechanical and chemical processes explicated in the *Philosophy of Nature*. Nevertheless, these latter presuppose certain natural conditions and determinacies that are not in question for the logic of ‘Mechanism’ or ‘Chemism’.

Regardless of the differences in their presuppositions, it is still possible to ask whether a certain natural determinacy has a conceptual structure corresponding to an intermediate logical category not explicated in Hegel’s *Logic*. I see it as a general question concerning the continuity and discreteness of the categories of the logical

system. From another, not necessarily conflicting, standpoint, the same question might have to do with the possibility of logically expounding a particular category, making its possible logical subcategories explicit, going further down to a level to which Hegel himself did not (consider it necessary to) go. Queries of this kind can significantly deepen our understanding of the logical categories and their development and help us better appreciate the similarities and differences between logical and natural determinacies. To illustrate, although one can see how specific logical categories and relations are instantiated in Hegel's explication of 'Physics' in *Naturphilosophie*, one can still ask if the 'Physics' as a whole, or some of its fundamental moments, such as magnetism and electrical relation, the two other forms of polarization in addition to chemical polarization, could have parallel logical determinacies in the logical system, in between 'Mechanism' and 'Chemism'. Such a question invites us to consider whether those two forms of polarization incorporate or correspond to logical determinacies that are not exhaustible in terms of mechanics while necessary for a proper conception of the chemical process.

In this paper I hope to draw attention to a similar yet more obvious dissimilarity between the constituents of Hegel's system. In the *Philosophy of Nature*, 'Organics' (*Organische Physik*) comes right after 'The Chemical Process'. By contrast, in the logical system, the chapter on 'Teleology' is interposed between 'Chemism' and 'Life'. The chapters on 'Mechanism' and 'Chemism' are followed by a chapter on 'Teleology', after which comes 'Life'. One can raise two different questions regarding the difference in sequence. One might ask why teleology is not or cannot be treated as a natural determinacy in the *Philosophy of Nature*, or alternatively, if 'Teleology' *has to* come after 'Chemism' or before 'Life' in the system of logic. This paper focuses on the latter question only for reasons that will become clear after a discussion of the logical category of 'Teleology' below.⁷

Before dealing with this question in detail, I would like to address the elephant in the room and preempt a reasonable objection. I must make it clear that I have no wish to claim that the *Philosophy of Nature* has to follow the exact same order of the *Science of Logic*. Likewise, I am not arguing that for each logical category derived in the logical system, there *is* or there *must be* a corresponding real determinacy in nature or in nature and spirit combined. On the contrary, I would argue that we are not justified to speak of such a necessity unless it can be demonstrated.

Although one might think of several reasons why we cannot argue that there must be a one-to-one correspondence between the logical categories and the determinacies of nature and mind, I would like to focus on the one I find the most important. In its weaker form, that reason is that we cannot dictate any prior form, from without, to the content that is to unfold in the rest of the system. Hegel's system is not supposed to be following a given order that we can take for granted. This claim holds even within the *Science of Logic* itself. Just because we see a certain pattern in the 'Logic of Being', it does not necessarily follow

that the same pattern will work in the ‘Logic of Essence’ or the ‘Logic of the Concept’. Admittedly, the system of logic is the work of thinking and is therefore not without laws. However, it aims to demonstrate that those laws are inseparable from the very process of thinking, in which they become explicit. There are commonalities between concepts, transitions, and derivations, but those are not taken for granted before the activity of thinking. Furthermore, although there are fundamental commonalities, there are also fundamental differences. This is an important reason why the attempts to read the entire Hegelian system with the thesis-antithesis-synthesis model is misleading. To illustrate, each of the three constituent doctrines of the logical system, the doctrine of ‘Being’, ‘Essence’, and the ‘Concept’, has its own character, and it would be misleading to read each of them in the same way. In a nutshell, while in the ‘Logic of Being’, the categories pass over into further ones, in the ‘Logic of Essence’, they are posited and mediated by others, and in the ‘Logic of the Concept’, they develop into self-mediating and self-differentiating unities. Even this scheme could be developed in a way to reflect differences within each domain of the *Logic*. In this regard, it would be wrong to assume that the system has a code or a blueprint preceding the thinking process demonstrated in the *Science of Logic*.

In its strong form, we should not expect an absolute parallel because the system of logic is not such a blueprint either, even if it demonstrates itself to be self-determining thought thinking itself. The logical system does not dictate a necessary form to derive the determinacies of nature or spirit. If it did, then the rest of the system would contain an absolute form-content distinction, and the self-determination of the real determinacies would be questionable. If the unfolding of *Realphilosophie* were not self-determining, the enterprise of systematic philosophy in its entirety would have failed to deliver its promise of being autonomous. Beyond the logical system, we would be left with an aggregate of interesting paragraphs that can be employed in our thematic investigations carried out from a contingent perspective. As the reader would appreciate, this is the strong form of the reason why one cannot expect absolute parallelism, as it is based on claims about the character of Hegel’s system and its constituents that are difficult to demonstrate in this paper.⁸

Now, if the claim here is not that there must be a one-to-one correspondence between the parts of the system, then why raise the question about the place of ‘Teleology’ in the logical system? The simple answer is that it is worth *asking whether* ‘Life’ could immediately follow ‘Chemism’ in the *Science of Logic*, without the interception of ‘Teleology’. In the following, I introduce two reasons to justify this claim and then explain each reason in two sections.

First, the logical system may allow a direct passage from ‘Chemism’ to ‘Life’. This reason is partially an indirect one, as it turns to the *Philosophy of Nature*, where there is arguably a smooth transition from ‘The Chemical Process’ to ‘Organics’. It is worth *exploring* if the logic of ‘Chemism’, the way it develops and ends, already

provides all that is necessary for the Idea of 'Life' in its immediacy, or if the logic of life requires the extra logical work of 'Teleology' that may or may not be reflected in the natural treatment of life.

The second and the more direct reason is that 'Teleology' conceived as a logical category may not be conceivable without the first and immediate determinacy of 'Life'. To be a little more specific, the logic of 'Teleology' runs into a problem that may not be resolved from within its own resources, without appeal to the minimum determinacy of life. As I would like to explain, this is not one of those cases in the system of logic where a category 'finds its truth' in another category that follows from it. Just as life cannot be conceived without mechanical or chemical processes, teleology may not be intelligible without life.

In the following two sections, I discuss these two reasons in more detail.

I. The chemical process leads to life already

If 'Teleology' is not supposed to be interposed between 'Chemism' and 'Life' in the system of logic, then a direct passage from 'Chemism' to 'Life' must be possible. By first turning to the *Philosophy of Nature*, I would like to show that the transition from the chemical process to the first forms of life is smooth, even though 'Geological Nature' appears as the first determinacy of the section on 'Organics'. Afterwards, I explore whether the logical development of 'Chemism' allows for a similar passage.

I.i. From 'Chemism' to 'Geological Nature'

In a couple of different paragraphs, Hegel repeats that the chemical process as a totality is an analogue of life, where life is in its simplest form a spontaneously kindling and self-sustaining, perpetual chemical process:

The chemical process is thus an analogue of Life; the inner restlessness [*Regsamkeit*] of Life, there before our eyes, may astonish us. If the chemical process could carry itself on *spontaneously*, it would be Life; this explains our tendency to see Life in terms of chemistry.⁹ (PN: §326A)

If the products of the chemical process spontaneously renewed their activity, they would be Life. To this extent, then, Life is a chemical process made perpetual. (PN: §335A)

The main moments of the chemical process are the combination of chemical bodies into a neutral particular individual and the dissociation of this individual back into differences through a series of processes, which at the same time characterizes certain universal kinds of chemical processes that occur in nature. The

overall idea is that the chemical process as a totality, as a total process and a philosophically relevant natural determinacy, is a circle of processes of combination and dissociation:

A full exposition of the chemical process in its totality would, however, require it, as a real syllogism, to be explicated also as a triad of closely interlinked syllogisms; syllogisms which are not merely a simple connection of their termini but which, as active processes, are negations of their specific forms and they would have to exhibit the interrelationship of combination and dissociation knit together in a single process. (PN: §334R)

Each of the moments of the chemical process ‘presupposes the other but is itself initiated from without and becomes extinct in its particular product, without from its own resources continuing itself and passing immanently into the process’ (PN: §329). Since the chemical process can produce what it destroys, Hegel writes that ‘the chemical process is, in fact, in general terms, Life’ (PN: §335). In the very same paragraph, however, Hegel also indicates that the chemical process is contingent upon external factors such as catalysts, dissociation does not necessarily mean the re-production of the initially primed chemical objects, and the process does not spontaneously rekindle itself. Even when the chemical reaction is spontaneous, there are always external factors in play. Reactants must somehow be externally brought or connected together through some medium or instrument that is not their own making. Furthermore, even when the process is considered in its totality, the constituents of this totality do not perform in unison. Similar to mechanical interactions giving way to further motions, chemicals end up producing next chemical in the line, making the entire process a linear one. In this regard, the chemical process as such is not a process that unifies a multiplicity of members, without taking their self-subsistence away. Thus even though the chemical process *as a totality* ends up *implying* the structure of life, Hegel knows that the perpetuity of the process is just one side of the coin. Because on the other side, in the chemical process, there is the separation of the two moments, identity and difference. These moments do not coexist as they do in life; they form a sequence in the chemical process. Although a merely chemical cycle has the potential to produce its factoring elements, it does so only at the expense of the currently existing ones which either coalesce in the new product or disintegrate into components. The organism, by contrast, sustains its unity thanks to its continuously differentiating yet coexistent particular constituents, which do not simply vanish in their products. Despite the relations of affinity between primed chemicals, mutual externality still reigns in the chemical process, and therefore, the totality does not have an explicit individuality. In a way that emphasizes the mutual externality of chemicals, Hegel writes ‘the

beginning and end of the process are separate and distinct; this constitutes its finitude which keeps it far from Life and distinguishes it therefrom' (PN: §335).

Thus, in life Hegel sees more than a totality of chemical process, and states that life is a perpetual and self-kindling chemical process. Nevertheless, the gist of life is proven to be implicit in the chemical process.¹⁰ Although no single chemical reaction is by itself autocatalytic, it is possible to have a plurality of chemical processes that produces the inputs and catalysts that can renew the process in its entirety. In that sense, the determinacy of the chemical process entails the *possibility* of a series of processes that can reproduce its beginning conditions. This capacity to bring about the presuppositions of one's *existence* or *realization* occurs as something new in the system of nature and in its explication. The chain of chemical processes that realizes this possibility will be described as the 'fully realized [*für sich*] chemical process', 'the universal process of the Earth', from which the explication of nature can move on to the organic nature (PN: §326A).¹¹

Another characteristic that comes to light through the nature of the chemical process and pushes *Realphilosophie* towards the realm of organics is the implicit unity that hints at itself in and through the chemical syllogisms Hegel expounds.¹² Hegel argues that these chemical processes do not only prove the relativity and transiency of its constitutive moments, rendering bodies with different properties 'a whole cycle of alterations' (PN: §336), but also points to the universality of the kind that underlies all those particularizations. In other words, in all these particular moments, the chemical object also demonstrates its unity and universality, although only implicitly:

In all reactions in which the body combines with others, in symmetries, in oxidation, and in neutrality, it preserves its specific nature, but only implicitly [*als an sich seiende*] not existently. [...] The cycle of particular reactions constitutes the universal particularity of a body, but this exists only implicitly or in itself, and is not a universal existence.¹³ (PN: §336A)

Thus, Hegel ends the section on 'Physics' in the *Philosophy of Nature* by explaining how this unity finds its existence in the reality of the organism, which, unlike the chemical process, is the activity of bringing its own particularization into a unity and spontaneously sustaining itself.¹⁴

I.ii. The beginning of the 'Organics' section.

Although Hegel finds the fundamental idea of life and organism implicit in the chemical process, the 'Organics' section of the *Philosophy of Nature* does not start with forms that contemporary biology would consider living. Instead, Hegel moves on with what he calls 'the universal image of Life, the *geological* organism'

(PN: §337). Hegel is not reluctant to use familiar terms and examples to designate real universal determinacies.¹⁵ When the *Philosophy of Nature* arrives at the process that produces its presupposition, Hegel thinks we happen to have a fitting name for this new determinacy: ‘Earth’ or the ‘Geological Nature’. Hegel says that the ‘Earth’, or equally its universal process, is ‘the fully realized chemical process’, speaks of it as the universal individual, and calls it self-maintaining and alive (*selbsterhaltend und lebendig*) (PN: §326A). Unlike the particularity of the chemical element, which is only manifest in its contrast and relationship with other chemical elements, the ‘Earth’ does not have a chemical other; it does not have relationship problems, and thus, never dissolves. The ‘Earth’ houses chemical processes in such a way that these also incorporate all other objective processes; mechanical, magnetic, and electrical. Hegel calls the totality of those chemical processes of the ‘Earth’ the meteorological process and describes it as ‘the great chemistry of nature’ (PN: §326A). This process ranks higher than all the other inorganic processes because ‘it immediately precedes the vital process’ (PN: §326A).

Nonetheless, Hegel also calls the ‘Earth’ the geological *organism* and considers it under the heading of ‘Organics’. In this regard, with ‘Geological Nature’, the *Philosophy of Nature* has already made the passage to the reality of life. But Hegel adds that the geological organism, itself a form of organism, is not even a ‘living creature’ (PN: §338). This apparently confusing statement can be understood once one remembers that Hegel defines the organism in the *Science of Logic* as the *objectivity* of life. In this respect, the geological organism is only the basis of life, a skeleton on which life clings. It is the sort of natural entity on which life can flourish. It provides the setting that life and living things require. Unlike other forms of life, the geological organism does not produce itself. It has a history; its process of formation is prior to it. It does not develop its determinate formation or shape; it does not produce the totality of formations that accommodate geochemical processes solely by its own activity and does not actively bring them together by virtue of being their unified subject. In other words, the factors that figure in the formation of the habitable state of the planet are not produced by its geochemical processes but are results of a history of former and exterior mechanical, electromagnetic, and chemical processes, some of which lie outside of it.

Nevertheless, the ‘Earth’ proves to be more than a mere circular chain of chemical processes. It has a determinate shape, which is preserved in and through a multiplicity of processes that it undergoes. Even though the processes that factor in its initial formation are not its own making, it accommodates a totality of self-renewing and self-regulating chemical processes, which can now be taken as geochemical cycles. It is in this sense that the geological organism goes beyond the limits of mere chemical process, which falls short of bringing its constituents into an active and self-perpetuating unity. Furthermore, the universality only implicit in the chemical process attains a real existence thanks to the unifying role of the Earth,

which houses geochemical cycles. As Hegel puts it, the 'Earth' is in this regard 'the conservation' and the 'perpetual generation' of a system of differences (*PN*: §341A). The members that factor in these cycles, such as landforms produced by tectonics or celestial bodies that are conducive to the self-perpetuating processes of the planet, are self-subsisting individuals that are not formed by the geological processes they make possible. Nevertheless, they enable and are connected by these processes of motion that circulate specific sorts of matter Hegel refers to as the universal elements and maintain a determinate set of conditions, which in turn play a crucial role in the emergence of individual living things. The similarity between these geological formations and the inner constitution of life proper, namely organs, should thus be clear.

While the geological organism, as the shape of life, is still characterized by externality and finds its constituents as given, its unification of its constituents is likewise merely external. However, thanks to its elemental stability that provides a suitable medium for chemical processes, Hegel thinks the 'Earth' allows for and spontaneously generates proto-organic forms that cannot reproduce.¹⁶ Those could be thought of as individual chemical cycles that consist of material components that happen to fall together within an enclosed, arguably semi-permeable, region only to engage in a network of mechanical, chemical, and electromagnetic processes that altogether perpetuate itself. It is in this sense that we can perhaps deduce a Hegelian conception of primitive organisms.¹⁷ However, likely because of their immediate connection with the geological organism and their inability to reproduce, Hegel thinks that these point-like unities of life do not yet develop into organisms that have an articulate internal differentiation close to that of plants or animals.¹⁸ As Hegel puts it, 'the subjectivity in virtue of which organic being exists as a singular, unfolds itself into an objective organism in the shape of a body articulated into parts which are separate and distinct' (*PN*: §343).

Unlike the punctiform organisms that fail to differentiate and reproduce themselves, this self-articulating organism will have to be first considered in its immediacy, where all its functions coincide despite its articulation into separate and distinct constituents. For Hegel, this amounts to nothing but the plant form of life.¹⁹ While the geological organism stands for the 'Shape, the universal image of Life' (*PN*: §337), the animal organism fully instantiates the three processes of 'Life' as they are explicated in the logical system. Unlike the geological organism, which has a history, the animal has a self-produced and self-differentiated internal constitution, the ability to produce itself in and through assimilating and appropriating its environment, and the capacity to make itself perpetual through reproduction. The plant comes in between the two, exhibiting all three processes only to a lesser extent and in an indeterminate and barely distinguishable way, which demonstrates its lack of true unity and subjectivity.

The gradual passage from the chemical processes of the inorganic world and proto-organisms to full-fledged life in the *Philosophy of Nature* provides incentive to turn to the system of logic to see why or whether teleology is necessary to make the passage to the Idea in its immediacy. Before doing so, it is worth noting that Hegel does not bring external teleology into play in making this gradual passage.²⁰ Interestingly, in the additional notes to his introductory paragraph to ‘Organics’, Hegel speaks as though life is the first moment of the category of ‘Teleology’ in nature, without providing a reason why external teleology is bypassed:

The individuality of the chemical body can fall victim to an alien power; but life has its other within itself, is in its own self a single rounded totality—or it is its own end [*Selbstzweck*]. The first part of the Philosophy of Nature was Mechanics, the second part, in its conclusion, was the Chemical Process, and this third part is Teleology. Life is means, but not for an other but for this Notion; it perpetually brings forth its infinite form. (PN: §337A)

I.iii. The logic of chemism and the transition to teleology

At the beginning of the logic of ‘Chemism’, we have distinct objects with immanent determinacies as opposed to the objects of absolute mechanism where the so-called individuating determinacies are only totally relational. It turns out, however, that the activity of chemical objects is prefigured by their chemical counterparts. More truly, in and through its relationship with its counterpart, each chemical object proves itself to be the particular of one and the same implicit universal. Nevertheless, this so-called neutral universal is not a truly self-differentiating one. It is differentiated into its particulars externally and not by its own activity. Thus, in ‘Chemism’, just as the unification and differentiation of chemical objects are distinct processes, the unity and particularity that are supposed to constitute the concept are distinct moments.

The *Science of Logic* presents a series of syllogisms through which first the chemical objects combine into a neutral object, and then the neutral object dissociates into other neutrals with so-called affinities, which can in turn partake in further combinations or dissociations.²¹ Through these three syllogisms, Hegel shows that the initial differences that are immediately given can be reinstated. Although there should be, and there are, differences between ‘Chemism’ as a logical category and ‘The Chemical Process’ in the *Philosophy of Nature*, the fundamental structure of the chemical process in nature is already present in the logic of chemistry. The combination and dissociation are the essential processes that are bound up together. Although pairs of combination and dissociation processes can bring about chemical objects that are different from the initial ones, the logic of chemism

demonstrates how one and the same concept of 'The Chemical Object' denotes a totality of process that involves the production of its particular modes, including the initial particulars. In the end, Hegel defines the final moment of 'Chemism' as 'the self-realizing concept that posits for itself the presupposition by virtue of which the process of its realization is conditioned' (*WL*: 649/12.152). In this regard, the chemical process as a whole is the self-determination of the concept in and through distinctive objective processes. The crucial point is that although chemical processes are not self-initiating as they necessarily depend upon middle terms or external factors such as catalysts, those factors can also engage in further chemical processes with the particulars of the initially implicit universal. This entails the possibility of their being produced from within this same totality of chemical processes, as is the case for a collectively autocatalytic set of reactions.

As a result, Hegel logically shows that the chemical process as a whole can bring about its presuppositions, that is, the factors that initiate it on one hand, and enable it on the other, and thereby realize itself through its own course. The entire chemical process is a unity that determines its objectivity as a means to realizing itself, if not to maintain it. This is how the logical explication reaches the concept of the 'Subjective Purpose': the *concept* of self-realization in objectivity.

In the *Encyclopaedia* version, Hegel sums it up quite briefly:

The transition from chemism to the teleological relationship is entailed by the fact that the two forms of the chemical process [combination and dissociation] reciprocally sublimate one another. In this way it comes about that the concept, initially only present in itself in chemism and in mechanism, becomes free, and the concept, thus existing concretely for itself, is the purpose. (*EL*: §203A)

Thus, the implicit concept is realized in objectivity. Now the question is: why would this purpose, which is the concept of its self-realization, be the end that is realized in objectivity through some external means?²² Why would it not be the immediate subject-object, that is, immediately self-realizing objectivity? Because if it could be immediate self-realization in objectivity, then we would already be in the domain of the Idea, and speaking of 'Life'.²³

Before discussing the logic of 'Teleology', it is worth briefly noting how similar this transition could have been to the transition from the cause and effect relation to the 'Concept' at the end of the 'Doctrine of Essence'. The first moment of the 'Doctrine of the Concept', the universal as such, emerges as the identity of the 'Cause' and 'Effect', where each term demonstrates itself to be the condition of the other. As their identity, the universal as such is the *immediately* self-differentiating unity, which then proves to be the self-differentiation into particularity that is one with itself. At the end of 'Chemism', we have this time the *objective* processes

of the universal differentiating into its particulars and particulars unifying to demonstrate their universality. Although these are distinct processes, they presuppose and enable one another and possibly no other external factor. Thus the logical progression seems to arrive at the self-realization and self-differentiation in *objectivity*, the immediate form of which is nothing but ‘Life’, the purpose that is immediately self-realizing and self-differentiating in objectivity:

the idea is, first of all, life. It is the concept which, distinct from its objectivity, simple in itself, permeates that objectivity and, as self-directed purpose, has its means within it and posits it as its means, yet is immanent in this means and is therein the realized purpose identical with itself. (*WL*: 675/12.177)

Nevertheless, the end of ‘Chemism’ in the system of logic is followed not by an immediately self-realizing objectivity, but merely subjective purpose yet to be realized in objectivity through some external means.

II. Teleology is inconceivable without life

The goal of the previous section was to show that a passage from ‘Chemism’ to ‘Life’ in the logical system is not only possible but also reasonable. In this second section, I turn to the logic of ‘Teleology’ and argue that the concept of external teleology Hegel explicates in this chapter of the logical system, in fact, presupposes the logical determinacy of ‘Life’, prompting the question of whether it is misplaced.

Before talking about the logical development of the teleological process, I would like to make it clear that the point in question is not Hegel’s consideration of teleology as a logical determinacy. On the contrary, external teleology does deserve its place as a distinct logical determinacy. The teleological process has a logical structure that is also embedded in several determinations of nature and spirit. Like *the relation of whole and parts*, or *the ground and the grounded*, the *relation between the end and the means* is before all a logical one in the Hegelian sense of the term ‘logical’, and the process of the objective realization of subjective content should therefore be logically explicated. Hegel’s treatment of the logic of ‘Subjective Purpose’ is brilliant, and the challenge posed by the subject’s relation to objectivity as a means is crucial. Once again, the question is whether external teleology is treated at the right place in the derivation of logical categories. Based on the very content of this logical category, I argue that it might be misplaced in the logical system.²⁴

What does the logical content of ‘Teleology’ involve? The teleological process starts with purpose as the subjective content that presupposes its realization in objectivity. It is worth recalling that the category of ‘Teleology’ in Hegel’s ordering

is still in the domain of 'Objectivity', as its final moment. This comes as a surprise for the following reason. The logical system as a whole is an account of increasing degrees of self-determination, while the domain of 'Objectivity' is no exception to this pattern. Once the domain of 'Objectivity' follows 'The Syllogism' of the 'Concept', however, 'the Object' takes the leading role in the story of self-determination. Accordingly, the degree of self-determination that the 'Chemical Object' demonstrates is more advanced than that of the 'Mechanical Object'. Nevertheless, in Hegel's explication, although 'Subjective Purpose' is no object, it overtakes the role at the end of 'Chemism', despite the fact that the domain of logical explication continues to be that of 'Objectivity'.

Furthermore, before Hegel explicates the moment of 'Subjective Purpose', he says, 'purpose is, in the first instance, precisely this concept which is external to the mechanical object' (*WL*: 656/12.159). Although 'Chemism' shows how the concept of the 'Chemical Object' is realized in and through chemical processes, it is not obvious, still in the sphere of 'Objectivity', how the *Logic* ends up with a purely subjective content that stands over and against objectivity. Again, although the logic of the 'Concept' establishes the form of subjectivity together with the self-differentiating unity of the concept, it is not clear how the 'Concept', subsequently embedded in objectivity, proves itself to be free from the chemical objects that realize it and becomes *the concept of subjective purpose*. Nonetheless, Hegel writes that we have this concept of an end, and it is 'an essential striving and impulse to posit itself externally' (*WL*: 657/12.160).

In the next step, this emancipated purpose needs to subordinate the objectivity it presupposes for its objective realization. After all, it is not immediately realized; otherwise, it would simply have been subjectivity *already* realized in objectivity. At this point, we do not have some divine intuition that creates the content while intuiting it, either. The subjective purpose is going to realize itself in objectivity, and this has to consist in a process of realization in objectivity. Teleology necessarily involves mechanical and chemical processes.

While the subjective purpose is already determinate thanks to its posited content, it also presupposes an objective world that is indifferent to the content of the purpose. However, to determine the objectivity and realize itself, the subjective end needs to employ a middle term, that is to say, some *means*:

Through a means the purpose unites with objectivity and in objectivity unites with itself. This means is the middle term of the syllogism. Purpose is in need of a means for its realization, because it is finite—in need of a means, that is to say, of a middle term that has at the same time the shape of an external existence indifferent towards the purpose itself and its realization. (*WL*: 659/12.163)

The purpose unites with objectivity, and in turn, with its own realization, only through the means. Just as the presupposed objective world, the means is also external and indifferent to the 'Subjective Purpose'. Thus, the means is rendered a mechanical object to be employed due to its external and indifferent character, as regards the purpose *and* the indeterminate objectivity it is being used to transform. *In this regard*, it is not the object that realizes subjectivity:

since purpose is in the means as only an external determinateness at first, it is itself, as the negative unity, outside the means; the means, for its part, is a mechanical object that possesses purpose only as a determinateness, not as the simple concretion of totality. (*WL*: 660/12.163).

However, it is precisely this external and indifferent character of the means that enables it to serve a purpose. The external determinability of objectivity, which the logical explication emphasizes throughout the section 'Objectivity', allows the subject to subordinate and enlist mechanical and chemical processes to its own end. For the same reason, the means can determine the other extreme of the syllogism, the indeterminate objectivity, in accordance with the end: 'Their process in this connection is none other than the mechanical or chemical one; the previous relations come up again in this objective externality, but under the dominance of purpose' (*WL*: 662/12.165).

Nevertheless, the purpose's relation to the means is different from the relation of the means to the indeterminate objectivity. While the latter is ultimately a relationship between objects, a subject relates to the object in the former. The determinate content of the purpose cannot be objectively realized unless the subjective purpose can *relate to* the presupposed means.

Furthermore, the subject's enlisting and transforming the means for its purpose is already a purposive process of self-realization in objectivity, as utilizing the means as the means is also an end, whereas this activity is itself also purposive. However, the end of using the means entails the mediation of some further means. Thus, each time the subjective end relates to its means, it requires some other means, which creates an infinite regress:

If we consider the one *premise*, that of the immediate connection of the subjective purpose and the object that thereby becomes a means, then the purpose cannot connect with the object immediately, for the latter is just as immediate as the object of the other extreme in which the purpose is to be realized *through mediation*. Since the two are thus posited as *diverse*, a means for their connection must be interjected between this objectivity and the subjective purpose; but such a means is equally an object already

determined by purpose, and between this objectivity and the teleological determination a new means is to be interjected, and so on to infinity. The *infinite progress of mediation* is thereby set in motion. (WL: 665/12.168)

One conclusion Hegel draws from this regress is that it is a matter of indifference whether we consider an object determined by external purpose as the realized purpose or only as the means. Indeed, just as the employment of the means is a purposive activity that requires its own means, when the other end of the equation is considered, the transformed objectivity can always be employed as a means to some other end to infinity.

There is, however, another conclusion to be drawn from the relation of the subjective purpose to the means. In a sense, we can speak of such an infinite regress going both ways *unless* the subject can immediately get hold of its means. In fact, unless there is another way already explicated in the logical system, laying out how the purpose can externally determine objectivity in a way that the determinacy is not totally external to the objects, as in the free-mechanism, or already implicit in the object, as in the chemical process, the subject's immediate appropriation of the object appears to be the only way the purpose can determine the means. Otherwise, the possibility of the teleological process would be at stake. 'The Doctrine of the Concept' establishes how the subject determines itself through self-differentiation of the universal into its particulars. The 'Objectivity' section demonstrates how objects are indeed conceptually determined. At this stage in the logical development, however, it is yet to be seen how subjectivity can externally determine objectivity. Here, in the development of the logic of the teleological process, the subject's immediate appropriation of objectivity as a means to realize its purpose appears to be the only condition that makes the teleological process possible in the first place.

To be clear, Hegel does speak of the necessity of such immediate relation to objectivity. In fact, he uses this immediate employment of the means to argue that the extremes of the process, the end and its realization, overlap in their middle term, namely, the means that is enabling the realization. But how exactly does Hegel account for the immediate relation of the subjective purpose to the object? The *Encyclopaedia Logic* explains this immediate control on account of the subject's power over the object:

The concept is this immediate power because it is the negativity identical with itself, in which the *being* of the object is thoroughly determined only as something *ideal* [*ideelles*]. (EL: §208).

The process of carrying out the purpose is the mediated manner of realising the purpose; just as necessary, however, is the

immediate realization of it. The purpose seizes the object immediately because it is the power over the object, because in it the particularity is contained and, in the latter, the objectivity is also contained. The living entity has a body; the soul takes control of it and has immediately objectified itself in it. The human soul has a great deal to do in making its corporeal condition a means. A human being must first take possession of his body, as it were, so that it may be the instrument of his soul. (*EL*: §208A).

A similar explanation given in the *Science of Logic* emphasizes once again the posited and externally determinable character of objectivity:

the first object becomes by virtue of communication a means, for it implicitly is the totality of the concept, and its determinateness [...] is posited in purpose itself, therefore, as the latter's own moment, not as anything that stands on its own over against it. As a result, the determination of the object as a means is altogether immediate. There is no need, therefore, for the subjective purpose to exercise any violence to make the object into a means (*WL*: 667/12.169–70)

While the external determinability of the object and the subject's making use of this determinability to realize itself follows from what has hitherto been explicated in the logical system, it is still not clearly spelt out how the subject *as subject* can communicate its content and determine objectivity. My claim is that a possible answer is already there, and Hegel is taking it for granted, although that answer calls for a prior determinacy, the logical determinacy of 'Life'.

In so far as the above-mentioned overlapping of the end and the means stands for their unity, it equally implies 'Life', where the end and the means coincide. Indeed, as is illustrated in the passage above, the examples Hegel gives in the relevant passages are from life and the human body, even though they go further and bring in the reality of the mind. Certainly, life requires the subordination of objective processes to the end that it is. The internal process of life in its immediacy is the network of synergetic processes rendering its objective constituents the means to sustain itself as an individual totality. The organism is the primary means of life, and its subjectivity is necessarily bound up with it. Thanks to this immediate unity, the living individual can engage in all kinds of other purposive relationships. While the internal process or the organic unity of life is teleological, the coincidence of the end and the means demonstrates internal teleology. In this regard, the real question is whether the internal or the external teleology is logically prior. If the purposive activity of the subjective purpose presupposes an immediate

unity of the concept with its objectivity, as is the case with the living body, it is likely for internal teleology to denote a simpler determinacy.

One might argue that although the immediate appropriation of the object by a subject implies an immediate unity of the Idea that is first demonstrated by life or organic unity, this is precisely how Hegel makes the passage to 'Life'. For the external teleology to be possible, so the argument goes, the subject must be immediately united with its objectivity, which points to the initial determinacy of life as the condition for the possibility of the teleological process, thus paving the way for a perfect transition. Such an inference seems to have the form of a transcendental argument, where that which is to be deduced proves to be the condition, a grounding determinacy, of the possibility of some given. Ideally speaking, given the self-determining and presuppositionless character of the system, categories are not explicated by the help of the ones that have not been derived yet. At this step in the argument, the category of 'Teleology' does not *become*, or *prove itself to be*, the immediate unity of subjectivity with its objectivity. Rather, its explication continues to unfold *thanks to* the possibility of internal teleology, which is bound up with the immediate unity of subjectivity and objectivity. The relation of 'The Subjective Purpose' to the means is not how Hegel makes the transition from 'Teleology' to 'Life', since at that point where Hegel is still expounding the means, 'The Realized Purpose' as the third moment is not yet in place.

But can Hegel not account for the subject's immediate appropriation of the means without postulating life as the transcendental condition of external teleology? It is crucial to note that a major claim of this paper is that the immediate unity of subject with its objectivity is already implicated at the end of the logic of 'Chemism'. Accordingly, it is not just permissible but necessary for external teleology to make reference to internal teleology. The problem is that the reference to life should have been made not because life is the transcendental ground but because it is the enabling condition for external teleology. In fact, to some degree, this is what the logical unfolding of 'Life' does during its second moment, 'The Life Process', where the immediate unity between the subject and its objectivity is disrupted by the need, only to be restored thanks to the process prompted by the 'feeling' of that need. Thus, given the course of the logical progression, Hegel only had to continue with the explication of 'Life', the immediate unity of subjectivity with objectivity, which eventually leads to external teleology.

Even if the transcendental argument did not beg the question and were sound, it would amount to an exceptional case in 'The Doctrine of the Concept'. Throughout the logic of 'Objectivity', each concept or process proves to be an enabling condition of what follows it, and not the other way around. In general, the mechanical process enables chemical process, whereas they together facilitate both internal and external teleological processes. In other words, what comes later sublates or incorporates what comes earlier. By contrast, neither

internal nor external teleological process is necessary to conceive of ‘Mechanism’ and ‘Chemism’. Not to mention, in a somewhat non-Hegelian way, that this nested structure of the logic of ‘Objectivity’ also agrees with our intuition. After all, a barren world of inorganic processes is imaginable, where life without the inorganic world is not. Acknowledging this structure also corroborates what is crucial about Hegel’s concept of the ‘Concept’, as it pertains to the world of objectivity, regardless of whether there are purposive processes or life forms with or without a mind. That is again the reason why the progression of Hegel’s *Realphilosophie* makes perfect sense.²⁵

The same is true for the logic of the ‘Concept’, where ‘Syllogism’ requires ‘Judgment’, which in turn is inconceivable without the concept of the ‘Concept’. Admittedly, the fundamental truth about the ‘Concept’ is that each of its constituents, the universal, the particular, and the individual, proves equally to be the other two constituents, and that the three are ultimately one (and yet also different) (*WL*: 547–48/12.50; *EL*: §163R). However, it is crucial to understand that the particular cannot be accounted for without *first* establishing that the universal is self-differentiation. The concept of the ‘Concept’ has to begin with immediate unity, which then demonstrates its self-particularizing character.

The external teleological process cannot be an instance of those cases in the system of logic where a category ‘finds its truth’ in another category that follows from it, either. Hegel’s system attempts to show that the truth is bound up with freedom as self-determination. While ultimately ‘Truth’ is a feat of the domain of the Idea, and consists in the unity of the subject with objectivity, a certain category is true *to the extent that* it is self-determining. As opposed to what deVries (1991) maintains in his influential paper on Hegel’s teleology, external teleology is indeed a more advanced stage of self-determination than the immediacy of life. The external life process subordinates the internal process to its striving for self-determination. In that sense, the organic unity of life finds its truth in its external relation. The mediation, or the need that appears as a constraint before the freedom of the living individual, is actually a mark of its superior freedom. That is why Hegel thinks that the animal, which has to obtain its nourishment, has a more advanced subjectivity and superior level of self-determination than the plant with its immediately satisfied ‘needs’. The plant life finds its truth in animal life, since through the plant, the animal demonstrates the self-determination of the concept. In terms of classical jargon, plant life is contradictory in so far as the plant cannot demonstrate itself as an individual or a subject. This contradiction is resolved by the animal, only until animal subjectivity and freedom itself proves to be limited by the life of the genus. Nevertheless, the limit that pertains to the real determinacy of the plant does not render plant life inconceivable in its own right, or without any reference to the animal. It is indeed the other way round: vegetative life is an indispensable aspect of the determinacy of animal organism.

What Hegel rightly calls external teleology is a unique kind of process that cannot but have its place in the logical system. Indeed, both in the *Greater and Lesser Logic* and in the *Philosophy of Nature*, the living individual demonstrates teleology in its relationship with the world, while ‘Practical Cognition’ as a form of the Idea transforms the world in its pursuit of the Good. In the metabolic process where the external object is appropriated into the living body and in the living individual’s shaping its environment according to its own needs, the teleological process is in place. While in the first of these cases, the object does not persist as an object but is incorporated as a constituent of the organism, the second case instantiates the realization of the subjective concept in objectivity.²⁶

One may argue that ‘The Subjective Purpose’ of the external teleology is different from the concept realized through such formative activity exemplified by animals, driven by instinct. It is very likely that such a construal of ‘The Subjective Purpose’ in ‘Teleology’ presumes a logical determinacy instantiated in *Realphilosophie* by forms that demonstrate consciousness of objects or capacity for representation. Although I am sympathetic to the thought that the determinacy of the mind Hegel explicates at the end of the *Philosophy of Nature* and at the beginning of the *Philosophy of Spirit* has an underlying parallel in the system of logic, one major problem with the current place of ‘Teleology’ in the system is that at that point, there is not sufficient determinacy to justify talk of such determinacy.²⁷ After all, the mind is living, and it presupposes life in the first place. Even though the concept of a subject-object, that is, the conceptual aspect of the Idea is there at the end of the chemical process, subjective purpose in the form of a representation of an end is not. In fact, while the entire process of ‘Practical Cognition’ demonstrates an external and purposive activity subordinated to the pursuit of the Good, the representation of the Good itself presupposes ‘Theoretical Cognition’, where truly conceptual representation of an object is arguably achieved for the first time in the development of the logic of self-determination.

If it were in some way possible to think of the subjective purpose without implicating anything about the mind and life, external teleology could have found itself a place between ‘Chemism’ and ‘Life’. One appealing route in this direction would be to construe the logic of external teleology in a way that relates to what Hegel calls the geological organism, or geochemical cycles that have the potential to host forms of life. This route would not only be consistent with the sequence in the *Philosophy of Nature*, but also avoid begging the question by not referring to the determinacy of life or mind. Hegel likes to bring up the *cunning of reason* when he is talking about history and the teleological process it involves. If, likewise, the history of the ‘Earth’ could be thought of as the realization of the concept that the ‘Earth’ is, the processes involved could have been construed as teleological based on various factors serving as the ‘means’. Nevertheless, even though with its self-sustaining identity in and through its inner self-differentiation,

the 'Earth' is surely a concept, it would ultimately be an overinterpretation to conclude that the 'Earth', before its history of becoming 'The Geological Organism', is a subjective purpose to be realized in objectivity. If the sequence and the transition suggested in this paper is compelling, we do not need to go down that route.

To conclude, what is offered for consideration here is the possibility of bypassing the logic of 'Teleology' for a direct passage from 'Chemism' to 'Life' in its immediacy, only to explicate 'Teleology' later in the system of logic. Although the systematic order of the natural determinacies laid out in the *Philosophy of Nature* has no authority over the sequence of logical determinacies, and although there does not have to be a one-to-one correspondence between the logical categories and natural determinacies as they are explicated in Hegel's system, the direct transition from 'The Chemical Process' to 'Organics', or from the self-sustaining totality of the geological organism to the plant organism in the *Philosophy of Nature* is an incentive to consider a parallel transition in the logical exposition. In the first part of the paper, I tried to show that a similar passage in the system of logic is workable. In the second part, I argued that the logic of Teleology is conceivable only through a substantial reference to the initial determinacy of the Idea of 'Life', that is, the immediate unity of the end and the means, and the immediate unity and realization of subjectivity in its objectivity. Since this initial determinacy of life is conceivable independently of the process in which some subjective end is realized in objectivity through some external means, the logic of 'Life' should have preceded the logic of external teleology. Last but not least, by way of this paper, I attempted to demonstrate that queries of the kind carried out here can only enrich the Hegel scholarship and help us better understand Hegel's system of philosophy.²⁸

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Notes

¹ For a comprehensive study of Hegel's concept of life and in its development in his vast corpus of writings, see Sell (2013).

² Whether Hegel unjustifiably brings in concepts that cannot be conceived in terms of what he has explicated up to that point in the logical system is, however, a different matter.

³ This paper owes much to several important works focusing on Hegel's logical treatment of life, including Düsing (1986), Spahn (2007), Kreines (2008), Spieker (2009), Winfield (2012), Sell (2013), Kisner (2014), Khurana (2017) and Ng (2020). For works that particularly emphasize

the independent character of Hegel's logical account of life, see Winfield (2012), Kisner (2014), Ebeturk (2017) and Ng (2020).

⁴ As Kisner puts it, 'any development must be carried out only and solely with respect to the conceptual determinacies implicit in the category under examination without introducing anything given independently of those same determinacies' (Kisner 2014: 37).

⁵ For detailed examinations of the section 'Organics', see Ferrini (2009), Ebeturk (2017) and Winfield (2018).

⁶ See Ebeturk (2017: Part II).

⁷ Despite growing interest in Hegel's treatment of life, both in his system of logic, and in his *Realphilosophie*, transitions from 'Chemism' to 'Teleology' and from 'Teleology' to 'Life' are either quite briefly covered, or are not given any attention (see Burbidge 2002: 12–13; Winfield 2012: 296–97; Kisner 2014: 95). This is not unexpected, as the chapters 'Teleology' and 'Life' are often discussed in comparison to Kant's teleological judgment and in relation to the internal-external purposiveness distinction. However, some of the works that deal with Hegel's concepts of both teleology and life (such as Kreines 2008; Khurana 2017; Ng 2020) discuss the priority relation between 'Teleology' and 'Life'. I believe that this paper can contribute to this discussion by the priority debate with the order of logical derivation.

It is worth noting that Ferrini (2011a) and Burbidge (1996) are excellent works that engage with the transition in the *Philosophy of Nature*, which I will consider later in the paper.

⁸ It is imperative to mention *The Owl of Minerva* (Fall/Winter 2002–03) for an excellent debate on the relation between the system of logic and *Naturphilosophie*. It involves six notable essays that represent different perspectives: Burbidge (2002), Halper (2002), Maker (2002), Winfield (2002), Dudley (2002) and Houlgate (2002). A well-articulated account of the relationship between the *Logic* and *Realphilosophie* that I find most compelling can be found in Winfield (1984).

⁹ Abbreviations used:

EL = Hegel, *The Encyclopaedia of the Philosophical Sciences in Basic Outline, Part 1, Science of Logic*, ed. K. Brinkmann and D. O. Dahlstrom (Cambridge: Cambridge University Press, 2015).

PN = Hegel, *Philosophy of Nature, Part II of the Encyclopaedia of the Philosophical Sciences* (1830), trans. A. V. Miller (Oxford: Oxford University Press, 2004).

WL = Hegel, *The Science of Logic*, trans. by G. di Giovanni (Cambridge: Cambridge University Press, 2010)/*Gesammelte Werke* (Hamburg: Meiner, 1968).

¹⁰ 'The unity in which both determinations are at once present does not come to existence; this unity, as existent, is the determination of Life, and towards this Nature strives Life is present in principle [*an sich*] in the chemical process; but inner necessity is not yet existent unity' (*PN*: §335A).

¹¹ For a very similar interpretation of chemical process in the *Philosophy of Nature*, see Burbidge (2007: 114–15): 'Nevertheless, even though we cannot claim to have reached the full concept of "life", when we look at all the chemical processes as a totality we reach something that does

resemble a concept within that logical discussion: the concept of “organism”, of a whole made up of interacting parts. Each substance and property is both an independent result of one process, yet also the necessary condition for other substances and properties through other processes’.

¹² I am thankful to the anonymous reviewer for bringing this line of reasoning to my attention.

¹³ See also Ferrini (2011b: 22): ‘Finally, in the chemical process the substance of the chemical comes to be conceived as point of unity, and its properties as “momentarily” appearances, reintegrated into the essential unity of a persistent co-ordination of the parts (the affinity bond)’.

¹⁴ ‘What is thus posited in general in the chemical process is the relativity of the immediate substances and properties. Body as an indifferent existence is thereby posited as a mere *moment* of the individuality, and the Notion is posited in *the reality which corresponds to it*: this *concrete unity* with self, self-produced into unity from the particularizing of the different corporealities, a unity which is the activity of negating this its one-sided form of reference-to-self, of *sundering* and particularizing itself into the moments of the Notion and equally of bringing them back into that unity, is the organism—the infinite process which spontaneously kindles and sustains itself’ (PN: §336). See especially Ferrini (2011a), who clarifies and emphasizes this aspect of the transition from the Physics to Organics. Based on this emphasis, Ferrini also underlines that Hegel is not advancing a naturalistic or vitalistic account whereby life spontaneously emerges from within the inorganic world (Ferrini 2011a: 208ff). I completely agree that one should not rush to conclusions about Hegel’s drawing an autopoietic organism right out of the totality of chemical process due to the limits of chemical process that Ferrini also clarifies in her account. However, I think Hegel’s account of the geological organism, his brief mentions of spontaneously emerging ‘punctiform, transient forms of life’ (PN: §341), and his explication of life in immediacy make his account still reconcilable with naturalistic accounts of the emergence of life, and more specifically, with contemporary accounts of autopoietic systems. Indeed, one can even argue that the possibility of an autocatalytic chemical cycle is already there in Hegel’s account. However, the emergence of such a cycle is a matter of utter chance and contingency that it should perhaps not be a part of the philosophical exposition of nature, where one is interested not in the historical development of natural forms but in the ontological development of natural determinacies. As Burbidge puts it, ‘this is not nature observed; nor is it natural science. Only a philosophy of nature so integrates conceptual comprehension and natural fact that a single conceptual shift is necessary to move on to the next stage: the shift from a totality that retains an element of diversity to a totality that actively integrates its moments’ (Burbidge 1996: 186). To see a philosophical account of life that relates Hegel’s account of life to contemporary theories of self-organization, see Winfield (2018).

¹⁵ Hegel notes that the attempt to categorically avoid such terms in order to attain absolute purity in presentation is futile and must be renounced:

the very fact that the logic must begin with the purely simple, and therefore the most general and empty, restricts it to expressions of this simple that are themselves absolutely simple, without the further addition of a single word;

only allowed, as the matter at hand requires, would be negative reflections intended to ward off and keep at bay whatever the imagination or an undisciplined thinking might otherwise adventitiously bring in. However, such intrusive elements in the otherwise simple immanent course of the development are essentially accidental, and the effort to ward them off would, therefore, be itself tainted with this accidentality; and besides, it would be futile to try to deal with them all, precisely because they lie outside the essence of the subject matter, and incompleteness is at best what would have to do to satisfy systematic expectations. (WL: 19–20; *Werke* 5: 30–31)

¹⁶ PN: §341.

¹⁷ Christian Spahn (Spahn 2007: 153–55) argues that life should have been explicated as the last objective process instead of ‘Teleology’. While I mostly agree with him, I think from the very beginning ‘Life’ demonstrates a form of the Idea, and therefore, needs to be explicated after the logic of ‘Objectivity’. Furthermore, as I argue elsewhere (Ebeturk 2017: 92–94, 118–27), the logic of life quickly develops into an account of inward determinacy. This determinacy is the mark of true subjectivity, and has its parallel in the real determinacy of the mind, first explicated in Hegel’s account of the animal organism.

¹⁸ See PN: §341A.

¹⁹ PN: §343.

²⁰ An exception is Hegel’s mention of the chemical sciences of his time, making appeal to teleology to explain the process of oxidation, which seemed to them inexhaustible in mechanical terms:

Certain chemical phenomena have led chemistry to apply the determination of teleology in explaining them. An example is the fact that an oxide is reduced in the chemical process to a lower degree of oxidation than that at which it can combine with the acid acting on it, while a part of it is more strongly oxidized. (PN: §335R)

²¹ For more detailed explications of ‘Chemism’ in the logical system, I would recommend Burbidge (1996), Ferrini (2011a), Winfield (2012), Kisner (2014) and Ebeturk (2017).

²² Here I would like to talk about a few different explanations Hegel scholarship provides us concerning the transition from ‘Chemism’ to ‘Teleology’.

John Burbidge, whose expositions of Hegel’s account of chemistry in logic and nature are the most thorough in that subject matter, gives a brief yet reasonable justification. He suggests that the chemical object implies a determining concept according to which objects are manipulated and organized, which Hegel calls ‘Teleology’ (Burbidge 2002: 7–8). However, if there is anything that the chemical concept realizes through some means is its own particulars, without which it cannot even be the implicit unity it is. Nevertheless, that which realizes itself objectively in and through its own differentiation (into particularity) is a form of the Idea, and therefore,

does not stand against its means in a completely external fashion. On the other hand, Burbidge accounts for the difference between the sequences in the logical system and in the *Philosophy of Nature* in terms of the differences in the methodologies of the two constituents of the system. He thinks that in the logical transition, thought reflects externally on the thought process and identifies the concept of subjective purpose, while in the *Philosophy of Nature*, ‘unexpected’ givens of scientifically controlled experience are incorporated’ (Burbidge 2002: 13). I beg to disagree with this methodological distinction and the supposed differences involved. I think on one hand that throughout the logical derivation, thought is (supposed to be) always immanent and never external to its content, and on the other hand, *Philosophy of Nature* does not bring in any given content, except for the terms it assigns to determinacies derived in the course of the explication.

While Cinzia Ferrini also explicitly acknowledges the difference in the sequences of logic and nature, she refers to the chemical process’s being ‘unable to arrange its parts from within according to a self-maintaining internal purposiveness’ (Ferrini 2011a: 211). However, as this is true for both logic and nature, this constraint of the chemical process cannot be the ground for the difference in determinacies that follow in the two parts of the system.

Wendell Kisner, who carries out a meticulous exposition of the logic of chemism, states that the logic of teleology does not amount to any conscious or intentional process. He argues that the chemical process brings about the externality through which it can realize itself as the chemical process, rendering itself purposive (Kisner 2014: 92). While I agree that the process described is purposive and not intentional, as the externality used as means is its own particulars, there is no reason to not consider the process as self-purposive. Even though the vanishing character of those particulars make them seem external to the implicit universal of the chemical object, the latter is nothing but their totality.

²³ Another question is how the concept that realizes itself becomes free from the objectivity that realizes it here, if that is what Hegel means by ‘free’ in this context. The result of ‘Chemism’ demonstrates the freedom of the process from externality to the extent that the externality becomes its own making, that is, *its externality*. It is not clear how it emerges as completely free from objectivity. The realization of the concept of the chemical process as a totality seems to be nevertheless bound up with a specific set of objectivity as it entails a determinate set of possibilities. By contrast, the concept of the purpose in the external teleology is free in the sense that its realization is not dependent on a *particular* object, given the contingency of the means as well as the particular object to embody it.

²⁴ For similar reasons, any polemical value of the ‘Teleology’ section is irrelevant to the question raised here. Even if, as Willem deVries argues (1991), Hegel succeeds in providing an account of teleology that addresses problems Kant failed to solve from within his system of philosophy, the logical progression of determinacies explicated in the main paragraphs should be evaluated independently.

²⁵ Khurana (2013), Kreines (2020) and Ng (2020) talk about the priority of internal purposiveness over external purposiveness. Khurana thinks, inner purposiveness is more fundamental and the most complete form of purposiveness (2020: 17) and argues that we ‘understand intentional

purposiveness against the background of inner purposiveness'. While I agree and argue in this paper that inner purposiveness is more fundamental and necessary for the conception of external purposiveness, I do not think that this makes internal purposiveness 'more complete', as from my perspective, external purposiveness necessarily incorporates internal purposiveness. In a similar vein, Kreines (2020) argues that for Hegel, the knowledge of any form of teleology requires above all the knowledge of immanent teleology, and that 'thoughtful teleology' depends on 'unthoughtful' teleology: 'Only insofar as there are organisms, with bodies structured by immanent purposes, can it also be the case that some of these organisms can think and represent ends on which the availability of a purposive body as "means" (*W/L*: 659/12:162) makes possible intelligent action'. (See a similar comment in Pinkard 2012: 194). While a part of my argument is that representing ends is contingent on there being an internal purposive organism in the first place, I maintain that this entails the necessity of accounting for internal purposiveness before making reference to any kind of external purposiveness. Finally, Ng argues that the priority of internal teleology to the determinations of objectivity is neither temporal nor causal, but should be understood in terms of truth (Ng 2020: 234; see also Ng: 2019, where Ng writes 'Hegel's arguments against external purposiveness are extremely dismissive' (2019: 128)). While I agree with the general idea of associating priority with truth, I argue that external purposiveness, if misplaced, is not a merely objective process, and by virtue of necessarily incorporating internal purposiveness and more, is not inferior to internal purposiveness in terms of truth, as is demonstrated in the organism's transforming its environment or practical cognition's pursuit of the good. Ng makes a potentially challenging remark in the same work when she correctly argues that mechanical, chemical, and teleological objectivity cannot determine themselves through their own activity as subjects, as they are doomed to be determined by a given genus (Ng 2020: 232). While this renders teleological object a form that is inferior to organisms in terms of truth, external purposiveness is not merely an object but a process, which, I argue, is not merely objective.

²⁶ In its externally formative activity, the end determines itself as objective by enlisting mechanical and chemical processes in such a way that the object that is the means transforms the object that is to embody the concept of the end and develop into the product of the process. In a sense similar to metabolic activity, the realized end itself involves the unity of subjectivity with objectivity, although this time in a very limited way. The transformed object still retains an external and passive character in the sense that its unity does not sustain itself, and still requires an external subject to maintain it over against the indifference of objective processes.

²⁷ Accordingly, when deVries argues that the subjective end 'is present in the mind (the indeterminate universal) as a specific intentional content with objective reference' and that 'this assures the cognitive aspect of the subjective end', he needs to account for how one can speak of the mind or any intentional content at this point (deVries 1991: 56). Similarly, Burbidge speaks of the means as the instrument that 'the subjective intention appropriates' in his work on Hegel's logical system, while, interestingly, he chooses to deal with 'Teleology' after 'Life' and 'Cognition' (Burbidge 2007: 145).

²⁸ I thank the editors of the special issue and the organizers of the ‘Workshop on Teleology in Hegel’s Logic’, Edgar Maraguat and James Kreines. I am also indebted to the two anonymous reviewers and the participants of the workshop on teleology for their valuable comments.

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