



The Speculative Method and the Problem of Deduction

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ABSTRACT: This article examines deduction within the framework of dialectical epistemology. It starts from the perspective that views dialectic exclusively as systematic dialectic, namely as a speculative method, and explains why deduction in the speculative method differs radically from its conventional understanding. By analyzing both induction and deduction, I explore these modes of reasoning through the lens of Hegel's *Science of Logic*. Specifically, I employ Hegel's *Logic* to examine deduction in both finite cognition and the speculative method. I argue that the immanent deduction, inherent to the speculative method, differs fundamentally from conventional deduction. In this way, I demonstrate that, in the speculative thinking, deduction is not based on given premises and axioms but rather follows the very movement of the self-developing object. Additionally, I point out that the immanent deduction, peculiar to the speculative method, is implicitly interwoven with concrete historicism. In this context, I highlight that the speculative method lacks general applicability, as it is dependent on the specific nature of the subject matter. Similarly, I suggest that the scientific method is object-dependent. In what follows, I underscore the key epistemological aspects of the speculative method, emphasizing their connection to the enhancement of the fundamental functions of knowledge. Based on this analysis, the importance of the speculative method for genuine scientific inquiry is stressed.

KEYWORDS: Speculative method, systematic dialectic, deduction, Hegel, Marx, dialectical epistemology, theory of cognition.

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Introduction

In contemporary philosophy and social sciences discourse, the debate about dialectic continues. Amid contemporary social, environmental, and technological challenges, reflecting on the scientific value of the dialectical method is of great significance. Various contributions from both Hegel and Marx scholarship challenge the traditional dogmatic understanding of dialectic, which construed it as an abstract ontology (Oittinen 2020). This ontological interpretation of dialectic represents a non-scientific and positivist approach to phenomena, aiming to “prove” preestablished ideas (Lotz 2019; Ninos 2023b). Meanwhile, recent scholarship (Arthur 2022; Fineschi 2014; Murray 2003; Reuten 2024; Sekine 2020; Smith 1990) has produced significant works that approach dialectic from the perspective of Marx’s method in *Capital*. In these works, dialectic is construed as systematic dialectic (SD), similar to Hegel’s speculative method (Ninos 2023a). One can recognize that these authors align with some of Ilyenkov’s core ideas, as he argued that:

. . . a genuinely concrete substantiation of the method of ascent from the abstract to the concrete as the only scientifically correct method of logical development, as the only method corresponding to the objective dialectics, should be looked for in Marx’s *Capital*, in the analysis of its logical structure. (Ilyenkov 2008, 175)

The term “systematic dialectic” encompasses a range of thinkers who hold differing views on key issues within dialectic.¹ A significant point of contention among these thinkers is whether the entirety of Hegel’s *Logic* corresponds to the dialectical presentation of capitalism. Arthur and Sekine advocate for a complete correspondence between Hegel’s *Logic* and the dialectic of capital (Arthur 2022; Sekine 2020), while Smith and Reuten argue that the SD presentation cannot extend beyond the logic of essence (Smith 1990; Reuten 2019). A common assumption among SD scholars is that this method is distinct from the simplistic interpretations of dialectic, such as found in the old orthodox dialectical materialism textbooks, which are sometimes associated with Engels. Additionally, SD scholars typically emphasize a sharp distinction between systematic and historical dialectic, and focus on the former, with the latter being understood in the context of historical materialism. The

1. For instance, Smith argues that systematic dialectic can be applied to any society (Smith 1990), whereas Arthur and Sekine assert that the specific nature of the value form and capitalism closely approximates the nature of the Hegelian absolute (Arthur 2022; Sekine 2020). Conversely, scholars such as Reuten and Meaney contend that dialectics can be applied to any self-developing object (Reuten 2014; Meaney 2002).

jettisoning of the historical aspect is, in my view, the principal deficiency of SD thinkers (Ninos 2024a). On this matter, I align with scholars such as Ilyenkov and others, who conceive of the dialectical method as being intrinsically intertwined with genuine historicism (Ilyenkov 2008). Although I diverge from SD scholars on several key points, I adopt the term “systematic dialectic” which I consider most appropriate for capturing the immanent and speculative nature of the dialectical method (Ninos 2023a). In my view, the term “method of ascent from the abstract to the concrete” as adopted by Ilyenkov and other thinkers, is inadequate for describing the specificity of the dialectical method (Ilyenkov 2008). This is because the progression of thought from the universal to the singular is not exclusive to the dialectical method but also characterizes synthetic cognition, which is a pre-dialectical stage in the process of cognition.

From the perspective of its scientific significance, the detailed examination of the epistemological aspects of the SD method is of great importance (cf. Morozov 2024). A thorough understanding of this method requires considering it within the context of the process of cognition.² Cognition is a core aspect of the metabolic relationship between human and social and natural environment (Azeri 2020). Consequently, each stage of cognition relates to different degrees of this metabolic character. Examining the SD method through the stages of cognition enables the identification of its specific features. Only by contrasting the SD method with other stages and methods of cognition can we deeply understand what is novel about it. In this article, I aim to show the difference between the SD method and other methods of cognition by focusing on the problem of deduction. This brings me into direct dialogue with E. Ilyenkov’s book *The Dialectic of the Abstract and the Concrete in Marx’s Capital*, which was the first to deal with deduction in detail within dialectical epistemology.

Starting from the thesis that dialectical method exists only as speculative method (Ninos 2023a), the article explains the role of deduction in speculative cognition highlighting its difference from conventional deduction. By doing so, I explain why SD method should be clearly distinguished from any other synthetic or geometrical method that follows the course from the abstract to the concrete. Consequently, I go on to explain how deduction differs in finite cognition and in speculative method respectively. In this context, I discuss further epistemological

2. For a comprehensive dialectical approach to cognition, see also (Azeri 2013).

aspects related to speculative method such as the nature of the subject matter for an SD presentation, the role of historicism and so forth.

The Role of Deduction in Cognition

Induction and deduction are two basic modes of reasoning associated with two main stages of cognition. The first moment of cognition involves a movement of thinking from empirical intuition to conceptual thought, while the second moment is the movement from conceptual thought back to the immediacy of the given. These movements of thinking have been a matter of reflection since antiquity for philosophers such as Plato and Aristotle. In the early modern period, the school of Padua deals systematically with these two modes of cognition from the aspect of scientific method, defining them as *resolution* and *composition* (Randall 1940). Resolution signifies the movement from the knowledge of an effect to the knowledge of its cause. It begins with the effect and breaks it down to causes. Thus, resolution starts with a complex phenomenon that is immediately perceptible and considers it the result of unknown causes. For scientific explanation, the phenomenon is posterior to the cause. Consequently, thinking dissolves the phenomenon into its basic components to find the first causes (Randall 1940). Once the first causes have been reached through resolution, the process can be reversed. Composition is to derive the effect from the knowledge of its causes. Thus, composition starts from these discovered causes and demonstrates the generation of the phenomena from their first causes. Using these prior causes as point of departure, thinking generates all phenomena whose existence results from these causes. Resolution and composition correspond to induction and deduction.

Induction and deduction are modes of reasoning that pertain to what Hegel calls finite cognition, namely a state of cognition where the gap between subjectivity and objectivity remains (Hegel 2010b, 697–726). Empirical induction is associated with the analytic method; it is reasoning that moves from the singular and concrete phenomena of empirical observation to general abstractions. Induction consists in identifying general features by intuiting the individual phenomena and forming analytical determinations. Bunnin and Jiyuan write that “in induction, a universal is derived from what is particular” (Bunnin and Jiyuan 2004, 341). Thus, reasoning by induction consists in producing abstract universal determinations through the analysis of the given. Induction is associated with the stage that Hegel calls analytic cognition (Hegel

2010b).³ It should be noted that induction in the broad sense does not correspond to the syllogism of induction as treated by Hegel. The latter follows the syllogism of allness and has the form U-S-P where the middle term/predicate (S) is of equal scale with the universality/subject because it includes all empirically observed singulars to which a common feature belongs. For this reason, the syllogism of induction is not a syllogism of existence but a syllogism of reflection. Hegel stresses that induction:

... is not the syllogism of mere perception or of contingent existence... but the syllogism of experience—of the subjective gathering together of singulars in the genus and of the conjoining of the genus with a universal determinateness on the ground that the latter is found in all singulars. (Hegel 2010b, 612–13)⁴

Deduction has the reverse logical structure from induction because it is a reasoning that moves from universal concepts to the particular and singular phenomena based on given premises and axioms (Bunnin & Jiyuan 2004, 341–42). The starting point of deduction is the abstract universal determinations generated by induction. Deductive reasoning consists in subsuming the particular phenomena under the abstract universal concepts. For this reason, the deductive method follows the movement of thought from the abstract to the concrete. This mode of reasoning corresponds to the stage that Hegel defines as synthetic cognition (Hegel 2010b). What is at stake on this stage is the comprehension of the unity of the aspects of the object. This also implies that cognition aims at the unity of essential and phenomenal determinations of the object (Ninos 2024b). In deduction, a conclusion is grounded on two independent given premises. The premises are not derived from one another but they are presupposed. A conclusion that follows deductively is a logical consequence of the initial premises. In this way, the abstract universal determinations are connected to the particulars and objectivity. It can be discerned that deductive reasoning is interwoven with the representation of necessity in thought. Starting from given universal premises and deducing the particular through them represents the necessary connection among the aspects of the object. For this reason, Hegel claims that synthetic cognition aims at the representation of the necessity of the object (Hegel 2010b, 706–707).

3. For a detail account of Hegel's theory of cognition see (Ninos 2024b; Kalatzis 2018). Additionally, for an insightful discussion of thinking and knowing in Hegel see (Bykova 2013).

4. This type of induction corresponds mostly in what we call nowadays induction by intuition.

The logical structure of deduction, moving from the simple and universal to the complex, divided, and concrete, implies that it is a mode of reasoning that emphasizes difference (cf. Hegel 2010b, 706). However, what defines conventional deduction is that the connection between universal, particular and singular is based on the common features they share, namely in their identity. Cognition seeks to unify the different aspects of an object based on their shared identity. This implies that, despite having a logical structure opposite to induction, deduction is a mode of reasoning still grounded in the principle of identity as induction. As a result, the particular and singular aspects of the object are conceived as attributes of the fixed universal category. Longuenesse aptly contends that defining the universal category of an object allows for the investigation of this object as a totality of relations (Longuenesse 2007). However, the proper determination of the universal concept is achieved at the level of speculative thinking rather than through conventional deduction. For this reason, conventional deductive reasoning is not conducive to determining the specificity of each aspect. Unable to reproduce systematically the specific determinations of the object in thought, conventional deduction is forced to extract them through empirical induction.

Addressing Ricardo's deductive approach, Ilyenkov argues that he "constructs further theoretical definitions of the money form through immediate empirical induction, through singling out those abstract general properties which all phenomena of money circulation without exception have in common" (Ilyenkov 2008, 190).⁵ This makes him unable to distinguish the determinations peculiar to money from the determinations that money acquires as part of capital. Hence, even though the deduction of the object's aspects is attempted, their connection remains external. Tony Smith aptly stresses that Ricardo and his followers "treat the law of value, an abstract determination, as if it held directly on the level of concretion. In other words, they skip over the intermediate categorial links connecting the abstract level with the concrete level" (Smith 1990, 35).

Unlike finite cognition, in speculative method the gap between the subject and the object of cognition is overcome. This implies that the moments of the concept, namely universality, particularity and singularity, are fully mediated (Hegel 2010b, 744–48; Ninos 2024b). This also implies that the universal is not a fixed category but rather a restless

5. For a detailed analysis of Ricardo's methodological deficiencies from a Hegelian perspective see (Ninos 2024b; also Marx [ms. 1862–63] 1968).

activity that immanently generates its own content. Hence, the unity of the different determinations is not carried out through their shared identity but through the concept's pure self-differentiation (Hegel 2010b). The concept, with itself as a subject matter, generates the totality of its determinations through its self-determining activity. The logical progression is the concept's self-differentiation. Hegel emphasizes that:

in the absolute method, the concept maintains itself in its otherness, the universal in its particularization, in judgment and reality; at each stage of further determination, the universal elevates the whole mass of its preceding content, not only not losing anything through its dialectical advance, or leaving it behind, but, on the contrary, carrying with itself all that it has gained, inwardly enriched and compressed. This expansion may be regarded as the moment of content, and in the whole as the first premise; the universal is communicated to the wealth of content, is immediately received in it. But the relation has also a second, negative or dialectical side. The enrichment proceeds in the necessity of the concept, it is contained by it, and every determination is a reflection into itself. Each new stage of exteriorization, that is, of further determination, is also a withdrawing into itself, and the greater the extension, just as dense is the intensity. The richest is therefore the most concrete and the most subjective, and that which retreats to the simplest depth is the mightiest and the most all-encompassing. The highest and most intense point is the pure personality that, solely by virtue of the absolute dialectic which is its nature, equally embraces and holds everything within itself, for it makes itself into the supremely free—the simplicity which is the first immediacy and universality. (Hegel 2010b, 750)

In speculative thinking, every new category does not point back to the previous one as a ground on which to build a stable edifice (Houlgate 2005b, 19–28; also, Luciano 2023). Instead, every new category is the sublation of the previous one and thus the transition from one category to the next is an increasingly richer determination of the object (Hegel 2010b, 750). McRae notes that “the destination of a speculative presentation includes the process of development in such a way that the end is always implicitly the beginning” (McRae 1985, 1). Therefore, speculative method constitutes an *immanent deduction* which means that the articulation of the categories of the object is internally interwoven with the concept's immanent self-differentiation (Hegel 2010b, 514; McRae 1985, 127). As Hegel stresses, “in the science of the concept, the content and determination of the latter can be proven solely on the basis of an immanent deduction which contains its genesis” (Hegel 2010b, 514). Consequently, speculative method goes beyond conventional deduction. In this method the immanent deduction of logical categories can be defined both as analytic and synthetic, inductive and deductive (Hegel 2010b, 746). As every subsequent category exists implicitly within the

previous one, the logical progression renders explicit what was previously implicit (Houlgate 2005a, 38). In this way, thinking is analytic because it posits something that was already contained in the initial category. On the other hand, each subsequent category does not simply disclose what is already implied in the previous one because the transition from one category to the next represents the concept's self-differentiation. Accordingly, the logical progression constitutes a process of generation of new categories. In this way, speculative method is the sublation both of analytic and synthetic cognition, of induction and deduction.

The Hidden Scientific Nature of the Speculative Method

Can speculative thinking be a scientific method for investigating contemporary phenomena or does it belong exclusively to the metaphysics of German Idealism? One might consider that since speculative method has to do with the realm of the pure concept in which the gap between subject and object of knowledge has been overcome, it does not concern the empirical realm of concrete science. However, Marx's *Capital* is the first work that proves the scientific value of speculative thinking or SD.⁶ It can be assumed that since Marx's critique of the speculative nature of Hegel's philosophy stems from the rejection of the metaphysical identity of subjectivity and objectivity, the speculative method has no place in concrete scientific inquiry. Nonetheless, though Marx rejects speculative philosophy as genuine metaphysics (Hegel 2010b, 9), and the consequent identity of subjectivity and objectivity, he does not reject the speculative method in which the positive is generated from the opposites (Hegel 2010a, 132–33; Ninos 2023a). *Capital* is the first work realized through scientific speculative method. If in Hegel's philosophy speculative thinking is possible due to the immanent activity of the self-relating concept, the scientific speculative method is made possible when a self-developing object is investigated. Marx defines the nature of the object of inquiry as an "organic whole" (Marx [1857–58] 1973, 100; also, Meaney 2002; Vazjulin 2011). By organic whole he means a "self-reproducing or self-sustaining entity" (Reuten 2014, 245). We realize that for Marx, the scientific method is object-dependent (Zeleny 1980). This implies that the scientific method is related to the degree of self-motion of the object of inquiry.

6. For Marx's approach to speculation, see also (Kangal 2019).

Drawing on the views of Reuten (2019), Meaney (2002), Vazjulin (2011) and Zeleny (1980), I contend that the dialectical method does not have universal applicability to any object, but rather applies only to those that constitute an organic whole—namely a self-developing object. Therefore, I agree with Smith who aptly asserts that “all Marxist theorists, including the defenders of systematic dialectical logic, thus must be methodological pluralists” (Smith 1993, 27). Accordingly, I assert that the dialectical method becomes applicable only when the object is governed by internal causality and self-movement (see Bakhurst 1991, 139). Based on this, an important open research question for dialectical epistemology is how the SD presentation must be adapted to different objects that exhibit varying degrees of self-motion. In this respect, then, I do not go so far as Ilyenkov, who, in *Dialectical Logic* (e.g. chapter 6) argues for a materialist identity of thought and being, as an abstract and general basis for the applicability of the dialectical method.

The consideration of the object as self-developing defines the way it is reproduced in thought (Vazjulin 2006). In contemporary literature, it is aptly emphasized that Marx’s method in *Capital* is a kind of synthesis (Caligaris & Starosta 2014; Bellofiore 2014). Yet, as Meaney aptly stresses, it is “an *a priori* synthesis and not a general deduction” (Meaney 2014, 45). In speculative thinking, the immanent deduction of the determinations on the object appears as *a priori*. In the postface of *Capital* vol. 1, Marx refers to his method as follows:

Of course, the mode of presentation must differ in form from that of inquiry. The latter has to appropriate the material in detail, to analyse its different forms of development and to track down their inner connection. Only after this work has been done can the real movement be appropriately presented. If this is done successfully, if the life of the subject-matter is now reflected back in the ideas, then it may appear as if we have before us an *a priori* construction. (Marx 1976, 102)

In one respect, Marx points out that the stage of inquiry lies in the detailed analysis of the object and the detection of its internal relations. The appropriation of the material in detail consists mainly in the generation of the abstract determinations of the object through empirical induction (see Smith 1993). The inner connection of the aspects of the object consists in relating its abstract determinations to its phenomenal ones, a process in which deductive reasoning prevails. Therefore, the stage of inquiry is associated with analytic and synthetic cognition and consequently with the operations of inductive and deductive reasoning

(cf. Meaney 2002, 169–70; Reuten 2019, 246–49). The mode of presentation consists in the immanent derivation of the economic categories. In other words, the mode of presentation is the scientific presentation of the essential determinations of the object or the representation of “the laws of political economy in their purity” (Marx 1994, 421). At this stage, the presentation of the economic categories appears as an *a priori* construction. Scientific cognition here is “surrender to the life of the object, or, what amounts to the same thing, confronting and expressing its inner necessity” (Hegel 1977, 32). We can realize the great homologies between Marx’s inquiry-presentation distinction and Hegel’s conception as formulated in his *Lectures on the History of Philosophy*:

If the science is perfected the Idea must certainly issue forth of itself; science as such no longer commences from the empiric. But in order that this science may come into existence, we must have the progression from the singular and particular to the universal—an activity which is a reaction on the given material of empiricism in order to bring about its reconstruction. The demand of *a priori* knowledge, which seems to imply that the Idea should construct from itself, is thus a reconstruction only [...] The whole of the Idea in itself is science as perfected and complete; but the other side is the beginning, the process of its origination. This process of the origination of science is different from its process in itself when it is complete, just as is the process of the history of Philosophy and that of Philosophy itself. In every science principles are commenced with; at the first these are the results of the particular, but if the science is completed they are made the beginning. (Hegel 1995, 176)

This passage from Hegel’s *Lectures* can shed light on Marx’s inquiry-presentation distinction. At the stage of SD presentation, in which the knowledge of the object appears as *a priori*, the content of knowledge also appears as immanently generated by itself, taking the form of an immanent unfolding of categories. This is because thinking reproduces conceptually the self-movement of the object. For this reason, the reproduction in thought of a self-developing object leads to a “circular course” of presentation (Marx 1994, 355), as this circularity mirrors the self-reproducing nature of the object (cf. Hanzel 2014). The method of this stage is SD that corresponds to speculative method. Marx adopts the structural characteristics of speculative method, which are strictly interwoven with the SD method, while rejecting Hegel’s position of overcoming the gap between subjectivity and objectivity. Hence, scientific speculative method becomes possible through the representation of an object as self-developing.

The speculative nature of the SD method which lies in the immanent and systematic articulation of the logical categories enables the exhibition of both the structure and the self-movement of the object (Arthur 2022, 70; Sekine 2020). By developing the logical consequences of the universal category, taken as the object's cell form, the speculative method represents each subsequent aspect of the object as a necessary transformation of the previous one (Campbell 1993; Banaji 2015). Every subsequent category is a more adequate determination of the object as a whole. We can parallel this logical progression with that of the concept as described by Houlgate: "Each moment of the concept is thus the whole concept in a different form or with a different emphasis. The universal is self-relating being that continues in its differences: it is thus one, single self-identical being" (Houlgate 2005b, 25). Speculative method proceeds through a twofold logical movement, the movement from the categories of immediacy associated with the concrete observable phenomena to essential relations and the movement from essential relations to their concrete forms of appearance (Ninos 2023a). This twofold movement that governs the immanent unfolding of the categories can be defined both as analytic and synthetic (Hegel 2010b, 746). Since at the level of presentation the life of the object is reflected in thought and appears as an *a priori* construction, the logical progression does not need anything external. As every subsequent category exists implicitly within the previous one, the logical progression renders explicit what was previously implicit (Houlgate 2005a, 38). In this way, the speculative method is analytic because it posits something that was already contained in the initial all-encompassing category (see Hegel 2010b, 750). On the other hand, the logical progression constitutes a process of emergence of new categories. Each subsequent category does not simply disclose what is already implied in the previous one because the transition from one category to the next represents the self-movement of the object (Ninos 2024b). Therefore, the speculative method is also synthetic. In this respect, Hegel argues that "this no less synthetic than analytic moment of the judgment through which the initial universal determines itself from within itself as the other of itself is to be called the dialectical moment" (Hegel 2010b, 741). Accordingly, the SD method combines analysis and synthesis, induction and deduction (cf. Arthur 2022, 36–45). For this reason, Ilyenkov aptly argues that:

. . . dialectics is the area where conscious, intentional coincidence of the inductive and the deductive moments takes places, the two constituting

indissolubly linked and mutually assuming moments of inquiry. (Ilyenkov 2008, 160)

At this point, we can raise the following question: what is the main limitation of conventional deduction and how does the speculative method overcome it? The logical structure of deduction corresponds to the representation of development from the simple to the complex (Ilyenkov 2008). However, although conventional deduction has this logical structure, it does not conceive the object as a concrete historical process. Thus, the inherent limitation of conventional deduction is that it neglects the historicity of the object. Neglecting to consider the object as a historical process makes it impossible to represent its self-movement. That's why Hegel points out that synthetic cognition reveals "propositions and laws, and proves their necessity; but it proves the latter not as a necessity inherent in a fact in and for itself" (Hegel 2010b, 707). The limitation of conventional deduction is that the connection and ordering of the categories do not correspond to the object's inner motion and historical development. When the deduction of categories is not immanently and internally connected with the object's movement and historical development it becomes formal. For this reason, Ilyenkov highlights that deduction which is not grounded on concrete historicism becomes formalism (Ilyenkov 2008, 194). Accordingly, the speculative derivation of categories is strictly associated with the presentation of the object as a process in development, namely as a historical process with a beginning and future death.⁷ Conceiving the universal category of the object not as fixed, but as active and self-differentiating, requires considering the object as a historical process. In this respect, Ilyenkov stresses that "deduction based on conscious historicism becomes the only logical form corresponding to the view of the object as historically emerging and developing rather than ready-made" (Ilyenkov 2008, 199).⁸

One can see that SD method is strictly associated with genuine historicism. In other words, the speculative logical ordering of scientific SD method reproduces in a sublated form the history of the self-developing object. The circularity of the SD presentation is intrinsically connected to the logical procedure of positing the presupposition (Bellofiore 2014).

7. The rejection by SD thinkers of the internal unity between the deduction of categories and concrete historicism can result in a formalistic speculative presentation of the object, depicting it as eternal and unchanging. This rejection of the historical aspect also shapes their approach to prediction, as the anticipation of an object's tendencies is intrinsically linked to understanding it as a historically self-developing whole.

8. On this matter see also (Ilyenkov 2018, 182–207).

Positing the presupposition is not solely a procedure related to the logical examination of the given and already developed object; it is also linked to the representation of the object's history in a sublated form. For instance, the historical development of capitalism involves the gradual transformation of pre-capitalist conditions into conditions generated and posited by capital. Thus, positing the presupposition also implicitly mirrors a concrete historical process in which capitalism gradually forms its self-developing nature by transforming its preceding conditions into conditions generated and posited by it-self. In this context, Marx points out that:

. . . in theory, we assume that the laws of the capitalist mode of production develop in their pure form. In reality, this is only an approximation; but the approximation is all the more exact, the more the capitalist mode of production is developed and the less it is adulterated by survivals of earlier economic conditions with which it is amalgamated. (Marx 1991, 275)

Based on the above, the hidden scientific nature of the speculative method lies in the internal unity between the immanent derivation of categories and concrete historicism. It is for this reason that Ilyenkov argues that without understanding the relationship between the logical and the historical, the dialectical method remains inexplicable (Ilyenkov 2008, 201). Therefore, the hidden scientific nature of speculative method is that it investigates the object as self-developing representing both its structure and its historical development in a sublated form (Ninos 2024a).

Why Scientific Speculative Thinking?

Analytic, synthetic and speculative method are associated with different levels of interconnection of the main functions of knowledge, that is, description, explanation and prediction. Though the functions of knowledge presupposed each other, different functions prevail in each stage of cognition. Empirical induction is associated with the course from the concrete to the abstract, namely from experience to conceptual thinking. This stage of cognition leads to the apprehension of the object from the aspect of abstract universality. Induction is thus strictly intertwined with the function of description (Ninos 2023b). As a function of knowledge, description consists in the representation of the object's immediacy in thought. Hence, description is a function of knowledge in which experience and intuition are prevalent. The stage of deductive reasoning is associated with the movement from abstract concepts to

conceptualised concrete immediacy. Through deduction, the connection of the object's relations is revealed. Thus, necessities and laws are revealed through deductive reasoning, whereas induction remains a constituent aspect of deduction. At the stage of deduction, the function of explanation becomes prevalent. To explain an object implies to reveal the laws that govern it. However, I stressed that in conventional deduction the object is conceived as given and fixed. Consequently, it becomes impossible to examine the object as a self-developing.

Speculative method is an immanent deduction through which the articulation of the determinations of the self-developing object is internally interwoven with the representation of its history in sublated form.⁹ In this way, speculative method enables the representation of the object's inner movement and consequently its potential tendencies. Accordingly, in scientific speculative method the explanation of the object is increasingly interlinked with prediction. Here, I diverge from Arthur and other SD scholars who exclude prediction from SD method (Arthur 2022). In contrast to Hegel's idealist dialectic, in which knowledge pertains to what has already become, I consider that the specificity of scientific SD lies in its reinforcement not only of the scientific explanation of the object but also in advancing our overall understanding, including enhancing predictive capabilities. However, within an SD approach, prediction differs from that in natural sciences. In social sciences like political economy, prediction involves discerning tendencies and defining a spectrum of possibilities. Accordingly, prediction is not a teleology or a metanarrative that determines the course of history. In *Capital*, we find numerous instances where Marx anticipates outcomes, especially in his analysis of economic crises such as in *Capital* vol.3 (e.g. chapter 15), among others. One can see that in SD cognition past, present and future are considered in their mutual interconnection. In this context, Ilyenkov aptly highlights that the problem of scientific prediction of the future is resolved exclusively in dialectical method (Ilyenkov 2019, 217).

9. What I need to emphasize here is that I do not equate the logical with the historical. An SD presentation primarily involves a logical examination of the given self-developing object. The historical aspect related to the logical development of the categories is implicit rather than explicit, as the self-developing structure of the object recapitulates its historical development in a sublated form. For a more detailed analysis of this matter see (Ninos 2023b).

In speculative method, the higher mutual interconnection of the functions of knowledge is internally linked to the perspective of conscious collective transformation of complex and evolving systems. Understanding the past, the present and the future prospects of a self-developing object is a necessary condition for its conscious collective transformation. In this context, Ilyenkov argues that “a wider view comprehending the phenomena in their entire actual content, coincides in Marx with the standpoint of practice taken in its necessary perspective mentally stretched into the future” (Ilyenkov 2008, 128).

Conclusion

In this article, I emphasized the crucial difference between SD and the other methods of cognition. I argued that SD does not constitute a form of synthesis and conventional deduction but the sublation of analysis and synthesis, of induction and deduction. Therefore, SD is a scientific speculative method which is possible when investigating a self-developing object. Drawing from Ilyenkov’s analysis, I underscored the deficiencies of conventional deduction which are mainly due to the non-historical approach to the object. In this way, I stressed that SD is an immanent deduction which is similar in its essential features to Hegel’s speculative method. In this way, I pointed out that the immanent unfolding of the categories of the object generates the representation of its structure and its historical development in a sublated form (Ninos 2023b). Hence, I argued that concrete historicism is the inherent aspect of the immanent deduction carried out by scientific speculative method. In this context, I argued that different levels and methods of cognition are associated with different kinds of objects and subsequently with different types of correlation of the functions of knowledge. In this way, I propose a new perspective on dialectical epistemology, where the cognitive method and the functions of knowledge are intimately connected to the nature and type of causality of the object. The immanent deduction of the SD method and its intrinsic connection to concrete historicism enable the enhancement of the basic functions of knowledge—namely description, explanation, and prediction. Therefore, the study of the past, present, and future of the object, which is essential to SD, is a *sine qua non* for the scientific understanding of a self-developing object. Therefore, differing on some points from both SD thinkers and Ilyenkov, I emphasized for the first time in the literature the core aspects of dialectical epistemology, specifically the internal unity between the

method, the nature of the object, and the functions of knowledge. I argued that the dialectical method does not apply to every object but only to those that constitute an organic whole. Thus, the speculative and immanent deduction of categories is intertwined with the presentation of the self-differentiating and self-moving nature of the object. In this context, I highlighted how concrete historicism is linked to speculative deduction and how the latter is inextricably connected to the enhancement of the fundamental functions of knowledge—namely, description, explanation, and prediction. Consequently, I have highlighted the importance of the dialectical method for contemporary scientific inquiry. Based on the core aspects of dialectical epistemology as presented in this article—namely the relationship between method, the degree of self-movement of the object, and the functions of knowledge—the various SD research projects, such as Marx's *Capital*, Arthur (2022), Eldred (2010), Reuten (2019), Sekine (2020), and Vazjulin (2011), can be evaluated to draw broader conclusions about the employment of the dialectical method in scientific inquiry.

Conceiving the dialectical method beyond its ontological interpretation and understanding its speculative nature enables us to integrate SD into contemporary scientific discourses and approaches such as enactive approach, 4E and others (Di Paolo and Potapov 2024). By doing so, SD can come to the forefront of critical scientific research and develop a contemporary Marxist approach to social phenomena. In the 21st century, humanity faces societal, technological, and environmental challenges that are unprecedented in their scale and complexity. Recent global economic crises, the modern state, contemporary social movements, and other aspects of social life demand the development of social theory grounded in the SD method (cf. Lotz and Feldman). Addressing these issues requires a deep understanding of the current threats and the prospects for social emancipation, which in turn necessitates a rigorous scientific study of complex phenomena. In this context, the scientific comprehension of contemporary capitalism is tightly interwoven with anticipating pathways for social liberation. The integration of advanced technologies such as AI and biotechnologies within the capitalist framework only heightens the urgency of this task, as these technologies significantly amplify human impact on the natural and social world (see Chukhrov 2020). In the contemporary neoliberal regime, historicism and prediction are often deemed metaphysical, conservative,

and outdated concepts, with no place in modern science.¹⁰ In contrast to this doctrine, which promotes epistemological principles that view the current social condition as eternal and indisputable, the essential aspects of dialectical epistemology are those most relevant to research focused on advancing social liberation. For this reason, SD research should not be confined solely to political economy but should extend to a more comprehensive study of society as a whole. The SD method has the potential to provide new insights into areas such as social stratification, technology, and the overall relationship between society and the natural environment. Ultimately, the assimilation of the SD method and the thorough investigation of the contemporary social cosmos as a self-developing whole enhances our ability to describe, explain, and predict social dynamics in the perspective of social emancipation.

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