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HERMENEUTIC REALISM AS A CRITICAL THEORY

I. Introduction

In the early 1970s the question of whether phenomenology could be a kind of critical theorizing has gained currency.[1] No doubt, this question was actualized by Habermas' critical reading of Husserl's diagnosis of modern science's crisis. Authors like Aron Gurwitsch, Joseph Kockelmans, and Maurice Natanson advocated in the 1960s the position that phenomenology is critical just because it provides a critique of science's objectivism and the natural attitude which is its pre-scientific ground. Yet is the critique of objectivism a sufficient condition for having a critical theory? The answer depends on the aims and goals governing the way of overcoming objectivism. Notoriously, Habermas' critical reading of the *Crisis* is inspired by the search for disclosing the "universal" (anthropologically invariant) interest in constituting objectivist theories of nature (or, natural-scientific theories). It is this (quasi-transcendental) search that informs his ambivalent position to the program suggested in the *Crisis*. Habermas' appreciation of that program is essentially linked to the two types of objectivism he distinguishes in his earlier work.[2]

On the one hand, there is the objectivism that deludes the natural sciences with the image of a reality-in-itself. It is a type of objectivism that wrongly admits the assumption that the reality which is thematically delineated in natural-

1 See, for instance, O'Neill (1972).
2 See on this point Habermas (1968), pp. 146–168.

scientific research is a "purely objective reality", being thereby not predicated on the constitution of meaning. By reviving in a phenomenological manner the forgotten reality of the primary (pre-scientific) meanings (the reality of the life-world), Husserl manages to combat successfully with this type of objectivism. This is why in the inaugural lecture from 1965 entitled "Knowledge and Interest" Habermas praises Husserl for his criticism of the "objectivist illusion" regarding the image of a reality-in-itself. On the other hand, however, there is another type of objectivism that struggles for freeing scientific knowledge from interest. By means of this objectivism, one attributes to science's theoretical knowledge pseudo-normative power from the concealment of its actual interest. The price Husserl has to pay in defending theory's interest-neutrality is too big: His diagnosis of the crisis of modern science (and the "humanity of modern Europe") remains tied to a sort of affirmative theorizing. It is a theorizing that by being not able to reveal the guiding interest in the objectivist study of nature, proves to be also not promoting the interest of emancipation (i.e. the interest that is at issue in critical theory).[3]

To sum up, Husserl's approach allows one to dismantle the "deficit of reflexivity" both in scientific objectivism and the epistemological legitimation of that objectivism. Nonetheless, this approach succumbs to a kind of objectivism which was always attached to the traditional concept of theory. While criticizing the objectivist self-understanding of the sciences – so Habermas' argument goes – transcendental phenomenology fails to resists the objectivism that appeals to freeing of scientific knowledge from interest. There is no phenomenological reduction that can unfold the "universal species-interests" in constituting the different types of scientific knowledge. The nexus "constitutive interest – scientific knowledge" proves to be *terra incognita* for Husserl's transcendental-constitutional analysis.

Now, in view of Habermas' criticism the question arises of whether phenomenology does have sufficient resources for overcoming the objectivism (and cognitive essentialism) traditionally associated with the epistemological nature of scientific theory? In raising this question, one has to address the kernel of phenomenology – its paradigm of constitutional analysis of meaning. In what follows, my aim is to show that Habermas' criticism is justified with regard to Husserl's transcendental phenomenology (including the version of it developed in the *Crisis*). Yet this criticism is irrelevant to the constitutional

3 Interestingly enough, twenty five years after his inaugural lecture devoted on the critical reading of the *Crisis* Habermas repeats the basic motives of his reading in a talk delivered at the German Congress for Philosophy (1990). See Habermas (1991), S. 34–48.

analysis suggested by hermeneutic phenomenology. More specifically, I will be preoccupied with a version of that kind of phenomenology which is worked out with the intention to surmount the reificationist objectivism that analytical philosophy ascribes to the natural sciences. For reasons that will become clear later, this version is called *hermeneutic realism*.

It is the concept of the world put forward by hermeneutic realism that surmounts the reificationism associated with those epistemological doctrines which claim that science succeeds in revealing a reality-in-itself. Hermeneutic realism manages to get rid of that reificationism by developing in particular a hermeneutic view of scientific objectification. However, it is not my aim to discuss this view here.[4] In the remainder I will rather concentrate my efforts on the concept of critique implied by hermeneutic realism as a radically anti-reificationist kind of realism. In a tentative manner, hermeneutic realism serves the purpose of a critical philosophy since it succeeds in overcoming the Cartesian dualism by linking a critique of science's self-imposed identity in terms of objectivism and epistemological foundationalism with a hermeneutic theory of scientific practices and the constitution of research objects within the dynamics of these practices. Furthermore, hermeneutic realism acquires the status of a critical theory by dismantling scientism as an "ideology" *sui generis*. In other words, hermeneutic realism plays the role of a "critique of ideology", preserving thereby the original distinguishing feature of critical theory.

In the present context of discussion, I would like to define scientism as that social-political advocacy of instrumental rationality built upon epistemological criteria of objectivism and foundationalism (and the concomitant objectivist construal of the world) which admits the relevance of this rationality to treating and solving all global environmental and ecological problems, i.e. all problems arising out from the scientific-technological control of nature. On another formulation, by declaring and instituting objectivist ("monological") study of nature as science's only possible self-understanding, scientism legitimizes politically the instrumental rationality implied by foundational-epistemological objectivism. Thus, scientism enables one to devise a strategy of global social engineering grounded upon that rationality. (A moderate form of scientism, typically advocated by Popper's critical rationalism, would be that one which replaces this strategy with a plurality of local initiatives of social engineering, or "piecemeal social engineering". In this case, foundationalism

4 For a detailed analysis of natural-scientific objectification in terms of hermeneutic phenomenology, see Ginev (2006).

is replaced by fallibilism, but epistemological objectivism is not given up.)[5] By ignoring the interpretative dimension of scientific research (the research process as a reading process), scientism perverts the specificity of scientific rationality, preventing thereby the possibility to looking for alternative (non-instrumental) forms of science-nature relationship.

The kind of critical theory that hermeneutic realism envisages is to be clarified in the first place by comparing the interpretative view of nature it puts forward with the way of addressing nature from the viewpoint of Habermas's quasi-transcendental theory of knowledge-guiding interests. Habermas rejects the idea of making nature a "communicative partner". On his view, it is impossible to use the language of dialogical interaction in a sphere of knowledge constituted by the interest in employing tools to change natural world for the purpose of satisfying our needs. In other words, since the constitution of nature within natural-scientific knowledge reflects the interest in the technological control of natural environment, the very admission that there is a nature with whom we could speak is non sequitur. One is able to get involved in a communication only with what is constituted by the interest in the achievement of mutual understanding based on the tenets of rational dialogue. Consequently, a hermeneutic dimension can be ascribed solely to the human sciences that are guided by such an interest.

The critical theory suggested by hermeneutic realism is guided by the conviction that the "liberation of nature" is a prerequisite for achieving liberation from all other historically self-imposed compulsive forces. In reviving to a certain extent Marcuse's project for a "new science", I will spell out some motifs of the dialogical "liberation of nature" in the final section.[6] Before addressing

5 Albrecht Wellmer (1974, p. 21) suggests nice and succinct estimation of the affirmative-political function of Popper's "liberal scientism" that deserves to be quoted: "The liberal justification of scientism accords not with critical but with conservative theory. It supplies the social engineers with the legitimation of measures in accordance with the dominant value system, … i.e. in accordance with the stabilization of the existing social power structure."

6 I have in mind the project suggested in Chapter Six of *One-Dimensional Man*. On Marcuse's account, objectivist epistemology as providing legitimation of scientific rationality and technological manipulation of nature are welded together into various forms of social control. Yet this state of affairs is not an outcome of a specific societal application of science. The fusion of objectivist epistemology and technological control of nature is rather inherent in scientific research that is guided by the tenets of scientism as modern science's self-imposed ideological consciousness. The fusion is at the same time the point at which scientific rationality (thus legitimized) turns into rationality of social praxis. (See Marcuse 1964, pp. 165–176) Scientific rationality becomes a political paradigm of controlling and colonizing nature (including man's own nature). On this account,

this problematic, however, my efforts will be concentrated on specifying the task of hermeneutic realism, and epitomizing the basic types of reificationism that this phenomenological doctrine promises to overcome. The critical function of hermeneutic realism consists in unmasking reificationist delusions that block the dialogical research of nature. Each type of reificationism I am going to address blocks in a specific fashion this dialogue.

II. The Task of Hermeneutic Realism

Hermeneutic realism is a doctrine developed originally by Patrick Heelan. According to him, the reality that is ready to hand in the process of scientific research is constituted as manifolds of meaningful "texts" by means of readable technologies. In this formulation, reading and constitution are intimately related. Texts are not written before starting a research process. Texts which science reads are artifacts of doing scientific practices, caused to be written by Nature on human instruments within the dynamics of changing configurations of such practices. Hermeneutic realism stresses that reality is always already meaningfully constituted, being thereby a textualized and readable reality. The texts constituted by scientific practices of observation, instrumentation, experimentation, measuring, etc. serve as codes for the perceived objects in normal scientific everydayness.[7] Being subjected to an ongoing reading, the reality is always in a process of constitution. Heelan argues that since more than logical coherence is called for, hermeneutic realism is not to be confused with a kind of conventionalism. There is an inter-

changing the standards of scientific rationality would imply exempting the ethos of doing research from the engagement in technological conquer of nature. By implication, new attitudes towards nature within natural-scientific research may come into being. Marcuse wrongly admits, however, that the technological rationality of instrumental control is crucially entangled with the growing significance of the instrumentalist and constructivist interpretations of scientific theories. In fact, scientism that justifies the transformation of scientific rationality into instrumental rationality of social exploitation of nature is not in need of such interpretations of scientific theories. The anti-instrumentalist interpretations are serving the ideological tenets of scientism (and thus, the technological conquer of nature) in no lesser degree. It is not the instrumentalism about science's theoretical entities that determines the direction of the transformation of nature into an objective resource for technological exploitation. More specifically, it is not instrumentalism as a particular position in the realism-debate by virtue of which scientific research is a priori technology. Accordingly, the methodological operationalism in interpreting science's theoretical entities cannot be put in a direct correspondence with social-practical operationalism of technological control of nature.

7 See Patrick Heelan (1983a) and (1983b). For a further development of hermeneutic realism see Crease (2009) and Ginev (2008c).

pretative fore-structure involved in the process of constitution that lays down conditions of possibility of uniting empirical objects to perceptual subjects via readable texts. Furthermore, hermeneutic realism differs from cultural or cognitive relativism by insisting on the horizonal character of reading scientific texts. There is always an interpretative commensurability (Gadamer's "fusion of horizons") that can take place between essentially different regimes of textualizing and reading. Furthermore, the interpretative commensurability between configurations of readable technologies persists in the semantic incommensurability between scientific theories' conceptual structures. It is the hermeneutic construal of world – the world as textualized by readable technologies – that has the potential of a critical de-reification of what is reified by an unreflective objectification.

On the argument that will be developed, the hermeneutic construal of the world (as the core-doctrine of hermeneutic realism) allows one to place in a new philosophical constellation a well known claim put forward by Adorno and Horkheimer that myth is transformed into enlightenment at the price of transforming nature into objectivity. Adorno and Horkheimer specify their claim by stating that "men pay for the increase of their power with alienation from that over which they exercise their power. Enlightenment behaves toward things as a dictator toward men. He knows them in so far as he can manipulate them. The man of science knows things in so far as he can make them."[8] Thus, the rationality of science becomes involved in the "dialectic of Enlightenment". Yet the point is how to come to grips with the claim that scientists construct knowledge about natural things in so far as they can construct those things. There are two possible readings of that claim.

On the one hand, scientific knowledge is not only a deductive-nomological knowledge about the objective status of natural things, but it is also the cognitive base of possible manipulations with those things, aiming at total technological colonization of nature. The scenarios of such manipulations are inscribed in the very mathematical idealizations by means of which the constitution of natural things as research objects (i.e. the "mathematical objectification of natural things") proceeds. Both the natural and the technological (artificial) states of affairs are governed by scenarios determined by a common class of mathematical idealizations. Since there is no clear demarcation line between objectifying natural things through scientific theories and manipulating them in accordance with scenarios promoted by the same mathematical ide-

8 Adorno and Horkheimer (1979), p. 9.

alizations which are releasing the cognitive structure of scientific objectivity, to make natural things thematic objects of scientific investigation amounts to using them as material and resources for constructing technological artifacts. On this reading, Adorno and Horkheimer's claim means that the reduction of nature to a scientifically objectified reality opens the door to an unhindered expansion of instrumental-technological rationality.

The second reading of the claim under discussion states that scientists can construct not only knowledge about natural things but the "things themselves" because these things are meaningfully constituted as research objects within the interrelated practices of scientific research. In other words, scientists can make the things they are studying just because they are involved in an interpretative interaction with those things, constituting them thereby as meaningful (readable) entities. To be sure, this is not the reading suggested by Adorno and Horkheimer. For them, the deductive form of science that "reflects hierarchy and coercion" identifies in an anticipatory manner the wholly conceived and mathematized nature with objective truth. In this anticipatory identification, enlightenment intends to secure itself against the return of the mythic.[9] Paradoxically enough, however, through the full-fledged formalization of nature enlightenment returns to mythology. It is the endeavor of scientism to achieve domination of nature that rehabilitates the pre-historical cosmic myth. The absorption of nature into mathematical formalism enacts the essential similarity between the construction of objective knowledge in science and the (technological) transformation of what gets objectified by that knowledge. Assigning interpretative reading and interpretative constitution of research object to natural-scientific research is unacceptable for Adorno and Horkheimer. In rejecting the possibility of interpretative-dialogical attitude towards what is in scrutiny in the natural sciences, Habermas continues the line of reasoning set up by the authors of *Dialectic of Enlightenment*.

No doubt, the way of reducing nature to objectified reality that can be dominated technologically goes hand in hand with prompting science's self-understanding in terms of scientism. Promoting and cultivating this self-understanding is intimately related to the strategy of a total technological colonization of nature. Hermeneutic realism tries to unfold this self-understanding as a "false consciousness" concerning (i) science's cognitive specificity (and methodological rationality), (ii) science's professional ethos, and (iii) science's ultimate goals and aims. It is a self-understanding that is in a drastic discrepancy with

9 Adorno and Horkheimer (1979), p. 25.

the interpretative nature of scientific research.[10] Changing the self-imposed image and identity of science (that is legitimized by objectivist-foundational epistemology and philosophy of science) with a picture that depicts the interpretative practices (i.e. practices distinguished by "readable technologies") of scientific research would imply a new way of devising science-nature relationship beyond the objectivist reduction of nature. This is the task of hermeneutic realism as a critical philosophy.

III. The Notion of Characteristic Hermeneutic Situation

In a broader context, hermeneutic realism is a family of post-metaphysical doctrines whose common denominator is the conviction that (*pace* Rorty) the place vacated by (foundationalist and representationalist) epistemology should be occupied by hermeneutics. In supporting this thesis, the hermeneutic realist opens an avenue to new forms of dialogue between (post)analytic and Continental traditions of philosophizing. There is no objective reality that precedes the reality of being-in-the-world. Before having the "world out there" as opposed to (and represented by) mind (the human cognitive abilities), the human beings are always already in the world of practices. Even the contemplation of "the world as objective reality" is a practice *sui generis* that is embedded in a configuration with other (cognitive and non-cognitive) practices. In another formulation, the ways of being in a practical world precedes the world as represented (or cognitively constructed) by mentality. Furthermore, the subject-object relation comes always into being within configurations of practices. Human agents might construct objective knowledge because of their involvements in "work-worlds". Moreover, "representing the world" or "constructing objective knowledge about the world" are actually sophisticated arrangements of various practices that cannot be isolated from the rest of the world of practices.

Starting out from the ways of being in the world of practices prevents one from an initial hypostatization of a dualism between the epistemic subject and

10 The image of scientific research as an undertaking strongly succumbed to the credentials of truth claims that are checked by a foundational theory of knowledge, the objectivist construal of the world, and the epistemological representationalism is largely accepted by scientists as "science's philosophical self-understanding". This is why the image of science codified by the norms of objectivist-foundational epistemology becomes a kind of scientists' "false consciousness". Moreover, the latter is a prerequisite for manipulating scientific research for various political reasons, including the reasons of transforming nature into a resource of an actual or a possible exploitation.

the objective world (and the dualism of conceptual framework and empirical content). The involvement in the world of practices is an interpretative mode of being in the world. Human beings are interpreting themselves in accordance with the possibilities they can appropriate and actualize in this involvement. In so doing, they are also interpreting the world of practices within the horizon of possibilities they have at their disposal. Being in the world of practices amounts to interpreting the world (and one's involvement in it) as a world projected upon possibilities that are engendered by the very interrelatedness of practices. On hermeneutic realism, the "horizon of understanding the world" (as a prerequisite for having an objective knowledge about the world) is tantamount to the "world as a horizon of understanding". Thus, the hermeneutic circularity is to be ascribed not only to interpretation as a particular cognitive procedure, but first and foremost to the being of human existence as being in the world of practices.

Hermeneutic realism opposes all views that admit the following clauses: (a) the credentials of all truth claims must be checked by a foundational theory of knowledge; (b) the objective reality is organized into distinct objects, and the distinctness of each of them is prior to the constitution of meaning; (c) the mind of man is isolated from the world in a manner that enables it to represent the world through images, ideas, concepts and categories; (d) there is an invariant and universal semantic core in mind that contains series of meanings related to the basic structure of objective reality. Roughly speaking, hermeneutic realism is a kind of realism that gets rid of Cartesian dualism, epistemic representationalism, foundationalism, and cognitive (including linguistic-semantic) essentialism. It is a common place for those who subscribe to a certain version of hermeneutic philosophy that the world is not out there, and mind is always within the world. Hermeneutic realism is opposed above all to metaphysical realism and by implication to scientific realism. Metaphysical realism is criticized for the uncritical postulation of ontic primacy of the dualism between mind and mind-independent objective reality over the totality of being in the "work-world" of practices. The hermeneutic realist raises the critical question of whether mind does not belong to reality. Since most of the metaphysical realists are inclined to argue that mind is a part of objective reality, the hermeneutic realist focuses her criticism on the predicament concerning the reconciliation of the following two doctrines: (a) objective reality is independent of mind; and (b) mind is part of this reality.

As a specific mode of "practical being in the world", scientific research is predicated on a dynamics of changing configurations of routine practices of

constructing instruments, designing and repeating experiments, preparing reports on observations, applying formal techniques for a graphical description, constructing systems of differential equations, calibrating instruments, controlling experimental systems, measuring control parameters of experimental systems, constructing various kinds of models, devising thought experiments, creating computer simulations, and so on. The routine reproduction of configurations of such practices constitutes the normal scientific everydayness of a certain research domain. It is the interrelatedness of practices of inquiry that projects an open horizon of possibilities for the research process. Such a horizon is always already transcendent with respect to the possibilities that get actualized in each particular situation of this process.

As a mode of being-in-the-world, scientific research projects its being of interrelated practices upon possibilities. There is an ongoing appropriation of these possibilities in normal science. Through this appropriation an ongoing articulation of a domain's objects comes into being. The ongoing actualization of possibilities and the concomitant articulation of a domain of research objects are characterized by anticipations, expectations and orientations assigned to the community which carries out the research process. The possibilities projected by a normal scientific interrelatedness of practices are not to be confused with the possibilities stemming from a mental activity planning such a behavior, thereby providing an algorithm of how to choose and appropriate possibilities. Like the routine practices of research, the possibilities upon which the research process is projected do not have an autonomous reality *sui generis*. Any suggestion of a pure presence of possibilities projected before the practitioners of scientific research would rehabilitate essentialism in a new form. The existential possibilities of articulating a world are not independent of the ways of their actualization.

More specifically, the projection of possibilities by configurations of scientific practices is always entangled with choosing, appropriating, and actualizing them. In stating that the articulation of meaningful objects comes into being through an ongoing interpretative appropriation of possibilities, one assumes that the configurations of practices are predicated on an intrinsic interpretative potentiality. This potentiality is due to the fact that all scientific practices serve the function of readable technologies in scientific research. Within the range of the cognitive outcomes of implementing such technologies are reports on observations or experiments, diagrams, comparative tables of measurements, analytical techniques for selecting control parameters in investigating dynamic behaviour, systems of equations, etc. To be sure, these outcomes are always

semantically integrated in larger theoretical frameworks. Yet all situational outcomes as well as the very process of their semantic (trans-situational) integration (by means of a theoretical framework) are *fore-structured* by the interrelatedness of practices.

The research process in a given domain is always in a hermeneutic situation. *Prima facie* such a situation can be depicted in Heideggerian terms. In the research process the practitioners who are involved in it have ideas about the specificity of domain's theoretical objects in advance (i.e. the research is grounded in a fore-having); they see the outcomes of formal, experimental, and calculative procedures in advance (the research is predicated on a foresight); and they envisage the ways of further incorporation of each particular outcome (measurements, experimental results, diagrams, data-models, theoretical models, conceptual innovations, etc.) in new configurations of practices (i.e. the research process is characterized by a fore-conception). The triad of the research process' fore-having, fore-sight, and fore-conception lays out an open fore-structure of each stage of domain's cognitive structuring by means of the (dominant) theory's formalism and its actual semantic models. (Though not challenging the assumption of semantic completeness of domain's basic theory, the theory's possible semantic models are particular manifestation of domain's interpretative openness.) The *hermeneutic fore-structure* "works" against the attempts at codifying a complete cognitive structure of a scientific domain. It always reveals possibilities of modifying (in the extreme case, breaking down) the present codification.

The hermeneutic fore-structure is not something that is statically pre-given to the dynamics of scientific research. In each configuration of scientific practices the unity of fore-having, fore-sight, and fore-conception opens itself in a specific manner. The hermeneutic fore-structure (as possibilities of seeing, having, and grasping domain's empirical and theoretical articulation) does not have a being-in-itself that might be separated from the changing configurations of scientific practices. Nevertheless, there is a general characteristic of how a domain's cognitive structuring gets constantly embedded in an open (and changeable) hermeneutic fore-structure. This general characteristic which persists in the articulation of a domain of scientific research I call a *characteristic hermeneutic situation*. From the very outset the scientific domain becomes disclosed (for a further articulation) in such a situation. The characteristic hermeneutic situation specifies the configurations of scientific practices as configurations of readable technologies. In other words, it specifies the research process as a process of reading. On a more technical level (and fol-

lowing Heelan's thread), a characteristic hermeneutic situation is identifiable by the complementarity of two dimensions of scientific research as a process of textualizing and reading (or better, textualizing-through-reading).

These are the dimension of objectification (de-contextualization) and the dimension of contextualizing. The former dimension refers to representing and reading mathematically idealized entities with quantifiable parameters, allowing the construction of data-models. The de-contextualization is manifested by the formal-semantic isolation of texts (embodying mathematical idealizations, theoretical objects, data-models, research objects and spaces of representation) from their readable technologies. The second dimension refers to the need to re-contextualize the reading process during the empirical and formal construal of a domain's theoretical knowledge. As a rule, the re-contextualization demands a reflection on the hermeneutic situation within the reading process.

The complementarity (or sometimes, the superposition) of both dimensions, which persists in a characteristic manner in all configurations of readable practices is another definition of the characteristic hermeneutic situation of scientific research. Thus, the characteristic hermeneutic situation, in which the domain of enzyme kinetics becomes disclosed, is the complementarity between the dimension of objectification as it is informed by a formalism that describes the kinetics of irreversible enzymatic reactions in terms of a relation between the reaction rate (the rate of bound substrate conversion to product) and the concentration of the substrate (plus the rate at which bound enzyme is unbound by substrate). The kernel of this formalism is the Michaelis-Menten equation, which rest on strong objectifying assumptions: (a) the product does not bind to the enzyme, thereby precluding the possibility of a reversibility of the reaction; (b) the total enzyme concentration remains constant; and (c) the whole system of the metabolic reaction that is catalyzed by enzyme remains in steady-state.[11] The dimension of contextualizing was informed by the search of

11 In line with Heidegger's existential conception of science, one may admit that the domain of enzyme kinetics is disclosed by a particular kind of idealization through which a region of Nature itself is "mathematically projected". In this projection the chemical reactions taking part in metabolism as they are catalyzed by enzymes are uncovered beforehand as a domain present-at-hand. This mathematical determinism is unavoidable in Heidegger's scenario of the genesis of science's theoretical attitude from the "average everydayness" of the primordial mode of being-in-the-world. In fact, however, the Michaelis-Menten equation (as a model of chemical equilibrium) is introduced in 1913. Joseph Fruton describes the period from 1830 to 1914 as the time in which biochemistry was in a state of continuous transformation. (See Fruton 1990, pp. 48–71, and Fruton 1992, pp. 74–87.)

the complexity of the chemical nature of protoplasm as a base of the metabolic processes in living organisms. This complexity can only be unfolded in a plurality of investigatory contexts. In the first decade of the 20th century the work in line with this dimension was stimulated by the rejection of the hypothetical (theoretical) entity of the "energy reach protoplasmic protein". In contextualizing the study of the abovementioned complexity, those who did research along the lines of this dimension succeeded to weaken the Michaelis-Menten formalism (as this was later extended by the so-called Lineweaver-Burk plot). To come to grips with a characteristic hermeneutic situation of scientific research requires a transcendental reflection.

IV. Hermeneutic Realism and Knowledge-Guiding Interests

Following the line of reasoning regarding the transcendental reflection, one may conclude that hermeneutic realism de-privileges that question of validity which Habermas places in the core of his theory of communicative action. The paradigm of hermeneutic phenomenology's constitutional analysis of meaning demonstrates the "derivative character" of communicative inter-subjectivity. The latter takes always place in the trans-subjectivity of projected possibilities. By the same token, there is no consensus-oriented rational dialogue whose normative-conditional structure can be isolated from the world of changing configurations of practices. The dialogue is always already situated within and transcended by the world of practices. By implication, the question of validity of communicative action has to be addressed by having recourse to ontological questions of trans-subjective horizonality of communication. Otherwise, the stipulation of a counter-factual normativity of the unrestricted dialogue would have led to a kind of essentialist hypostatization. To reverse this statement: By reducing the world's trans-subjectivity to the inter-subjectivity of communicative interaction, one replaces the constitutional analysis of meaning by a transcendental theory of dialogical argumentation. Yet the price one will have to pay will be the restoration of epistemological foundationalism, though in a radically non-Cartesian form of a dialogical-argumentative rationality.

Let me now spell out the main consequences for critical theorizing following from the profile of hermeneutic realism depicted so far. My aim will be to demonstrate that scientific research conceived of as an interpretative process is a locus of formation of a dialogical-communicative attitude towards nature. To reiterate, the task of hermeneutic realism as a critical philosophy consists in overcoming scientism in a manner that would allow one to elaborate on

models of science-nature relationship beyond scientism and the objectivist reduction of nature. In saying this, I return to the question of the sense in which hermeneutic realism does put forward an alternative to Habermas's quasi-transcendental epistemology as a base of critical theorizing. On Habermas's (and Karl-Otto Apel's) position, we cannot have a dialogical (communicative) relation to nature. The talk about the "liberation of nature in the name of its own rights" does not make sense in the epistemology of knowledge-guiding interests as well as in the theory of communicative action.[12] In opposing the confinement of the rational dialogue in the sphere of social interaction solely, I will eventually try to show that hermeneutic realism (in rehabilitating motifs of Marcuse's project for a "new science") involves the moment of scientific (and technological) interaction with nature.

Hermeneutic realism binds the perspective of critical theorizing not to the "question of validity" but to the "question of constitution". Steven Vogel is right when arguing that by treating the natural sciences' guiding interest in prediction and control of nature as determined by a mode of action that is built into the structure of the species as such, Habermas precludes the opportunity to address the issue of how interests in constituting scientific knowledge get generated in the dynamics of changing practices of research. By overlooking this issue, he acknowledges tacitly the objectivist picture of science and the positivist view about scientific rationality.[13] This is why an interest in a dialogical partnership with nature is declared to be pointless in the realm of natural-scientific research. There is in Habermas' enterprise a hypostatization of a "species-wide universal interest" that is exempt from a genesis within the practical contexts of being-in-the-world (or to pit it in a more Heideggerian parlance, an interest that is deprived of "existential genesis").

Hermeneutic realism repudiates any kind of philosophy that in transcendental or quasi-transcendental manner claims that the natural world (or, the "potential world" of natural-scientific research)[14] is constituted by a global knowledge-guiding interest. Such a philosophy – so the argument goes – hypostatizes the global interest by ignoring the real dynamics of changing configurations of practices in which domains of scientific research (and thus, the

12 See in this regard also the highly illuminative analysis in Vogel (1996, pp. 106–170).

13 See Vogel (1991), pp. 255–58.

14 I am employing the expression of "potential world" in order to stress its irreducibility to the "actual world of the natural sciences" that is predominantly schematized by the epistemological standards of objectivism – a schematization that serves the aims of scientism as ideology.

world of the natural sciences) get articulated. More specifically, Habermas' quasi-transcendental epistemology fails to resist the "anthropological reification" of an invariant interests-structure embedded in human action. In "deriving" all interests in having knowledge of a certain kind from the choices of possibilities within particular configurations of practices, hermeneutic realism avoids both the hypostatization of knowledge-guiding interests and the concomitant fallacy of an "anthropological reification".[15]

The constitution of an interest takes always place in the hermeneutic circularity of trans-subjective horizons and contingent-situational actualizations of possibilities. By the same token, it is always hermeneutically fore-structured with regard to the possibilities of reading one can appropriate by implementing the available readable technologies. A knowledge-guiding interest is neither fixed by internal (cognitive) goals, aims and values, nor determined by extra-scientific factors and demands. The former case is that of cognitive essentialism, typically illustrated by dominant doctrines in philosophy of science, while the latter – that of social determinism, typically advocated by constructivist sociologists and the so-called "social epistemologists". Being situated in an open leeway of possibilities (its hermeneutic fore-structure), a knowledge-guiding interest retains its "flexibility" within changing configurations of research practices. The formation of an interest in the constitution of scientific knowledge of a certain kind is never a finished process. It is rather a process that takes place within the ongoing interpretative circularity of projecting and appropriating possibilities of reading.

By getting rid of objectivism about the image of a reality-in-itself, hermeneutic realism devises an existentialist approach to knowledge-guiding interests, opposing thereby cognitive essentialism and social determinism. On the

15 The argument against quasi-transcendental epistemology suggested by hermeneutic realism differs from David Hoy's postmodernist argument against universalism of Habermas' critical theory. Hoy (1994, p. 172) goes on to assert that philosophical hermeneutics insists on the reading of scientific theories as outcomes of context-bounded social actions. This is why – so his argument goes – scientific theories cannot lay claims to universal validity. According to hermeneutic realism, however, the context-boundedness is not an argument against universality. If scientific research (including that in the natural sciences) is reflexive enough about the contextuality of its own configurations of practices (including practices leading to the construction of theories), then it will be able to give an account in its own terms of how the particular contexts are constantly transcended in the research process. Thus, the reflection upon the context-boundedness will promote an account of scientific research's self-transcendence. This reflection vindicates a kind of "hermeneutic universality" within the scope of scientific research. It is an universality that works beneath the proliferation of contingent interpretations associated with particular readable technologies. See Ginev (2006), pp. 49–71.

hermeneutic account of scientific research, these are interests in interpretative constitution of various kinds of research objects. Since the constitution of objects in scientific research becomes possible through choosing, appropriating, and actualizing possibilities projected by the very interrelatedness of scientific practices, a knowledge-guiding interest is a stable tendency of possibilities choices. In other words, regardless of how the possibilities of doing research are informed by external (economic and political) factors or by established internal cognitive values, the knowledge-guiding interest (as fore-structured by the possibilities of reading in which it is situated) gets generated by the intrinsic dynamics of scientific practices. Due to this intrinsic dynamics, scientific research has its own potentiality for generating dialogical attitudes towards nature, since there is a leeway of possibilities whose choosing and actualizing leads not only to getting rid of the objectivist image of a reality-in-itself, but to constituting research objects that can be read in different contexts and horizons.

Per definitionem, distinctive features of a "dialogical research" (such as interactive questioning, reflexive responsibility for asking questions, recasting outcomes of research in new horizons of interaction, asking about contextual meanings displayed by the objects of research, disclosing intrinsic historicity of sedimented meanings due to the "cultural destiny" of the "natural things", etc.) are displayed when the research objects are not entirely de-contextualized in accordance with objectivist epistemological criteria and norms, but their constitution remains open to new contexts and configurations of practices. (A requisite for an extreme de-contextualization is a sort of "mathematical reification" that consists in admitting the mathematical idealizations of objectification to be a pure presence of idealized objects independent of the dynamics of scientific practices and pre-given to the choices of possibilities for doing research and reading.[16]) Accordingly, the openness to a re-contextualization marks off a dialogical interaction with "natural things" under investigation. Re-contextualizing the research objects provokes at the same time a kind of interpretative reflexivity, which is also a part of the dialogical research.[17]

Hermeneutic realism is a program that tries to scrutinize science's intrinsic potentiality for constituting research objects in a dialogical manner. In ap-

16 See Ginev (2008a), pp. 111–136.

17 It is some versions of the feminist philosophy of science that most actively plead for a dialogical research in the natural sciences. The dialogical research exhibits a feminine sensitivity in the constitution of natural-scientific research objects. On the analysis of these versions of "dialogical feminism" in terms of a hermeneutic philosophy of science see Ginev 2008b.

propriating possibilities for further contextualization of the reading process, and in overcoming the reificationist objectivism that forgets the meaningful constitution of reality, one turns to a kind of *cognitive existentialism* (as opposed to cognitive essentialism and social determinism) about the nature of scientific research. On its central tenet, the choice of possibilities in scientific research is not determined by a reality that is outside (beyond or behind) the dynamics of practices with readable technologies. The possibilities for a "dialogical research" are also possibilities of de-reifying (or de-constructing) what gets objectified in scientific research. De-reifying is accomplished by re-contextualizing research objects in new configurations of practices. Put differently, within "dialogical research" the de-reification (of presumably static objects in their "pure presence") goes hand in hand with the re-contextualization and the re-constitution of research objects.[18] To stress once more, the dialogue consists in questioning what is under investigation in new contexts of practices characterized by new horizons of possibilities.

Being attached to "dialogical research", a knowledge-guiding interest comes into being in a characteristic hermeneutic situation of the research process. To reiterate, the latter is a process oscillating between the pole of objectivist de-contextualization of what is under investigation and the pole of "dissemination" of the research objects in as many as possible configurations of scientific practices. The knowledge-guiding interests are located within the spectrum between these poles. This is why each of them is characterised by an objectivist and an interpretative-reflexive (dialogical) dimension. A characteristic hermeneutic situation in which a knowledge-guided interest is constituted should be defined by the balance between both dimensions. The more one is de-contextualizing the reading process (and the objects involved in it), the more the "dialogical dimension" gets hidden. Consequently, the more what is under investigation acquires the status of a reality-in-itself. By contrast, the more the interpretative-reflexive dimension gets emphasized, the more scientific research takes on the form of a dialogical process, and the more research process approaches the tenets of hermeneutic realism.

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18 See on this point Rheinberger, Hagner and B. Wahrig-Schmidt (1997), pp. 7–22.

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