# Paolo Parrini's Third Way: The Network Model

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ABSTRACT

This paper aims to examine three aspects of Paolo Parrini's philosophy. Firstly, it intends to clarify in what sense the proposal of a *third way* is realised in the term 'positive philosophy'. Secondly, the purpose is to read the network model as a paradigmatic example of positive philosophy (more specifically one concerning the relationship between observation and theory). Thirdly, it proposes to use the structure of the network model to open up a broader, meta-philosophical scenario, the scenario to which Parrini devoted himself with particular intensity in the last years of his life. My hypothesis is that it is possible to interpret his position as post-analytic (in a weak sense as I will attempt to clarify) or synthetic, i.e. as a kind of substitute (to borrow an expression used by Husserl in *Krisis*), in the field of meta-philosophy, for what we call the network model at the epistemological level and positive philosophy at the more general theoretical level.

## 1. Towards a positive philosophy

The whole of Parrini's philosophy can be read as a relentless and laborious work of mediation. His proposal reflects the so-called crisis of the Standard View of scientific theories and largely shares the criticism of the kind of remedies that the tradition of Logical Empiricism had put into place to solve the ills of the Kantian perspective: the existence of synthetic a priori judgements on the one hand, and the distinction between analytic and synthetic ones on the other.

All the remedies proposed by Logical Empiricism – the assimilation of scientific theories to linguistic entities, i.e. the overestimation of the role of formalisation and the underestimation of the function of models in the development of empirical sciences, the two-level view based on the theoreti-

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cal/observational dichotomy, a certain conception of the rules of correspondence and the possibility of drawing a clear line between signifying and non-signifying expressions or between analytical and synthetic expressions – can indeed be considered largely ineffective, as the process of liberalisation within Logical Empiricism shows, or even likely to generate new diseases, as we see happening in the process of iatrogenesis.

This *pars destruens* is unreservedly integrated into Parrini's philosophy (Parrini 1998, 2002, 2003). His idea of a positive philosophy is embedded in his constructive point of view.

Throughout his intellectual life, Paolo Parrini considered two closely related theoretical presuppositions to be indispensable: on the one hand, we have the safeguarding of the value of experience, i.e. the adherence to empiricism (we will ask later to what degree this empiricism should be considered as radical), against any form of non-empirical realism. On the other hand, the avoidance of the seduction of metaphysics, by resisting the kind of historical revisionism that has occurred, for example, in the analytical renaissance of metaphysics, with the attempt to attribute this renaissance precisely to the father of Logical Empiricism, i.e. Rudolf Carnap (Parrini 2020).

Once the two indispensable conditions (empiricism and an anti-metaphysical attitude) have been made explicit, the third way lies between two extremes: on the one hand, the Standard View, characterised by an agglomeration of theses that have been passed through the sieve of history as problematic[1]; on the other, the radically relativist and irrationalist perspectives expressed by the most radical phalanx of Post-Logical Empiricism.

Positive philosophy expresses the attempt to maintain what in *Filosofia, oggi* (Parrini 2018) is called the requirement of rigour[2] (a fundamental

[1] The Standard View is characterised by the assimilation of scientific theories to linguistic entities, i.e. complexes of utterances in axiomatic-deductive form, the two-storey view of scientific discourse with the consequent dichotomy between theoretical and observational language and the special role played by the rules of correspondence, excessive concessions to extensionalism, and the possibility of drawing a clear line between signifying and non-signifying expressions (and thus between metaphysics and scientific discourse) and between analytical and synthetic utterances.

[2] «There are many who proclaim the end of the age of analysis; but on the very rare occasions when the proclamation has turned out to be something more than an expression of wishful thinking, it has been due precisely to the strong analytical training of those who make it» (Parrini 2018: 39; my translation).

prerequisite, along with unification or generality); the incessant dialogue between philosophy and science; and the rejection of metaphysics, understood not in the sense of that influential metaphysics which legitimately operates in the context of discovery, but as a discourse conducted in the total absence of control, a vacuous verbalistic and edifying exercise, conceptually volatile. Philosophical discourse, at the risk of its own survival, must be a controlled discourse. Unfortunately, this indisputable maxim, bordering on the obvious, has now ended up becoming an 'outdated conviction' (Parrini 2018: 20).

Positive philosophy thus intends to continue to defend that rigour of philosophical discourse that sparked the birth of Logical Empiricism. In this sense, the crisis of neo-positivism should not be confused with the crisis of the guidelines that animate positive philosophy. However, positive philosophy, which also differs from positivism in this respect, accepts the (even radical) criticism directed at the standard conception by «preserving part of its relativistic charge and emptying it of its radically anti-objectivist and anti-empiricist implications» (Parrini 1998: 42; my translation). In this way, positive philosophy becomes, to all intents and purposes, a work of conceptual mediation: in other words an attempt to limit extreme epistemic relativism without becoming entangled in the difficulties of metaphysical realism.

Positive philosophy shares a certain family resemblance with other empiricisms (e.g. Van Fraassen's constructive empiricism). It shares with Van Fraassen, for example, the abandonment of a purely linguistic view of philosophical problems. Not all philosophical questions can be «explained linguistically» (ibidem), and not all philosophical problems can be approached as questions of logic or philosophy of language, since «not all philosophical anomalies and puzzles arise from linguistic misrepresentations» (ibid: 43). However, unlike constructive empiricism, positive philosophy maintains a greater closeness and adherence to scientific knowledge: the overcoming of metaphysical realism does not entail the denial of scientific realism with regard to the unobservable entities of science and, unlike the various positivisms, it intends to clarify its guidelines not in the abstract, but «by drawing the necessary consequences from the philosophical analysis of scientific knowledge» (ibid: 42; my translation).

## 2. The network model

The network model is one of the basic assumptions of positive philosophy. It concerns the relationship between theory and observation, more specifically the relationship between the constitution of meaning, theoretical elaboration and sensitive observation. The other feature concerns the pairs schema/content (Davidson 1974, 1989), a priori/a posteriori and analytic/synthetic (Quine 1951). Taking as its starting point one of the main polemical targets of Feyerabend's epistemic relativism (Feyerabend 1975), the so-called semantic conception of observation (according to which experience provides a means to fix directly the meaning, and thus the truth value, of so-called observational assertions, e.g. 'red', and to fix indirectly the meaning of so-called theoretical assertions, e.g. 'electron'[3]), the network model presents itself as a possible alternative to the strong and weak theses of the theoretical character of observational assertions[4], capable of saving, on the one hand, the recognition of the conditioning that theoretical assumptions exert on our ob-

[3] This conception is thus based on the principle that the meaning of observational statements (and their truth value) is logically determined by observation, i.e. by the conditions of their empirical application (the principle of phenomenological meaning).

[4] According to the former, there are no observational utterances to which a stable and unchanging core of objective meaning can be attributed; hence the distinction between observational and theoretical utterances is only pragmatic in nature. According to this thesis, which envisages a collapse between language and theory, between the complex of meanings and the complex of beliefs, there are no ′practical facts′ but only ′theoretical facts′ (Duhem 1906, 1998). For authors such as Hanson, Kuhn and Feyerabend, scientifically relevant experience is not only theory-laden or interpreted in the light of theory, but intrinsically theoretical, which immediately raises the problem of the emptiness of empirical control. The second thesis, the so-called weak thesis of the theoreticity of observational assertions, essentially envisages the possibility (questionable in Parrini′s and my view) (Lanfredini 1988) of distinguishing between general categories and theoretical assumptions. This thesis, which in a sense is an extension of the Popperian idea of levels of theoreticity, i.e. an internal stratification of the undifferentiated concept of theorising, implies a problematic premise, namely that it is possible, on logical or naturalistic grounds, to draw a distinction between categories and hypotheses. Like the distinction between a linguistic system of meanings and a system of beliefs, and between analytical and synthetic utterances, the distinction between categories and hypotheses does not in principle exclude the possibility that a change in the realm of hypotheses does not also entail a categorical change, i.e. in the filing system, and that in the transition from one theoretical system to another the categorical reference system changes, as the philosophical implications of the theory of relativity show (Parrini 1998, 1999).

servational processes and, on the other, the empiricist notion that observation has the capacity to collide with an antecedent horizon of expectations.
The general problem is one of circularity, which Scheffler calls the paradox of categorisation (Scheffler 1982).

To state the point more clearly, if my categories of thought determine what I observe, then what I observe provides no independent control over my thinking; whereas, if my categories of thought do not determine what I observe, then what I observe must be formless and uncategorisable, and so again incapable of providing any control over my thinking. Now, the network model expresses the possibility of synthesising these two perspectives and, as the expression suggests, of modelling them, i.e. making them concretely operational.

The network model reminds philosophy of its *epistemological responsibility*, which prevents epistemic activities from being understood as «running around in the absence of friction» (Mc Dowell 1998), the friction which experience alone can provide. However, we should not interpret this responsibility in the dogmatic sense of the myth of the given, in which experience itself is impermeable, intangible, and unchangeable. In the network model, the two sets of forces (those that provide experience with theory, anticipation, and interpretation, and those that to some extent render experience itself impervious to theory by channelling it into predetermined channels), seem to merge in order to reconfigure themselves into another position.

In the network model, no so-called observational predicates can be read in terms of a direct empirical association, since they depend (like the so-called theoretical predicates) on a network of previously acquired assumptions. However, the network model assumes that some predicates (those we consider observational) are learned by means of primitive similarity recognitions, but it is not possible to make explicit the standpoint by which these similarity recognitions are made –with the risk of falling into the similarity paradox pointed out by Popper, according to which, in order for two things to be considered similar, it is necessary to identify a standpoint capable of making explicit the criterion by which the similarity judgement is made (Hesse 1953, 1958, 1980; Hesse and Arbib 1986).

> The reticular conception deprives the distinction between theoretical and observational expressions of any absolute value, specifiable by logical and naturalistic criteria, and gives it an exclusively pragmatic and relative status, analogous, in my view, to the dichotomies between the analytical and the synthetic, between the a priori and the a posteriori (Parrini 1998: 92-93; my translation).

The recovery of contextual value in the process of forming and learning symbolism with extra-linguistic referents forces us to admit that the primary process of recognising similarities and differences is necessarily non-verbalizable and primary, yet at the same time not fixable in independent observational assertions and non-transitive (if two objects *a* and *b* are similar to each other to a certain degree with respect to a predicate *P*, and if object c is similar to b to the same degree, this does not imply that c is as similar to a as it is to b, as the relation between different shades of colour shows). This process is necessary but not sufficient for a stable classification; it applies equally to terms traditionally considered observational ('red', 'round', etc.) but also to terms traditionally considered as theoretical ('chair', 'lunch', and 'mother', but also 'rule', 'gastric acid', 'heart attack', and 'atom').

The network model that emerges is therefore a horizontal model within which two conditions apply: 1. all descriptive terms, including those that are supposedly theoretical (e.g. 'electron'), contain a reference to direct empirical associations; 2. no descriptive expressions, including those that are supposedly observational (e.g. 'red'), can function only through direct empirical associations, since they can become false in order to secure a set of laws (e.g. 'it cannot be red because it is a sodium flame and the sodium flame is not red').

On a more general level, the network model makes a rather daring synthesis between apparently unrelated theoretical perspectives: Wittgenstein's concept of the language game and the notion of family resemblance (Wittgenstein 1953), Quine's notion of force field (Quine 1969, 1995), Duhem's holistic model of empirical control (Duhem 1906), Polanyi's notion of tacit knowledge (Polanyi 2002), Kuhn's notion of paradigm with particular reference not so much to the concept of theory or disciplinary matrix as to the notion of exemplary and concrete problem solutions (Kuhn 1959, 1963, 1979), Carnap's concept of chaos (Carnap 1922, 1967), and Mery Hesse's notion of metaphor and the primary recognition of analogies and differences (Hesse and Arbib 1986).

To this list I would now add the phenomenological notions of passive synthesis, motivation and sedimentation (Husserl 1966, 1970), the notion of a forceful quality (which Banks attributes to Mach and which refers to force rather than attribution (Banks 2003, 2014)), and the Jamesian notion of pure experience (James 1902, 1977). If we really wanted to be daring, we could add Merleau-Ponty's notion of chiasm or entanglement (Merleau-Ponty1968),

Bergson and Deleuze's notion of the mixed (Bergson 2004, Deleuze (1991, 1994)), and Whitehead's notion of drops of experience (1967, 2004).
These are philosophical notions that, while belonging to mutually alien worlds, actually share a common structure that translates into a general theoretical model: the network model.

Three are the general coordinates of network theory: neutrality, gradualism and force.

*Neutrality*. The network model proceeds not by distinctions but by integrations. In a dichotomous model (i.e. one based on the dichotomy between theory and observation, concept and perception, external and internal, appearance and reality, psychic and physical, etc.), the relation itself does not change the terms of the relation, whereas in a neutral model the relation transforms its own terms. Thus, for Mach, a sensation, understood as a neutral sensory element, belongs neither to the realm of the psychic nor to the realm of the physical, but to one or the other, depending on the relations it establishes. A colour, for example, becomes a physical object if we consider its dependence on the source of light, whereas it becomes a psychic object if we consider it in relation to its dependence on the retina. In the sensitive sphere of my consciousness, every object is both physical and psychic (Mach 1959, 1976; Banks 2003)[5]. Similarly, for James, a psychic state can be transformed into a physical state depending on the functional chain in which it is embedded, which allows us to look at the traditional distinctions between appearance and reality, perception and concept, psychic and physical, internal and external, etc. in a completely new way (James 1902, 1977)[6].

[5] This thesis implies the overcoming of the distinction between primary and secondary properties and the erroneous attribution of a fundamental supremacy to the science of mechanics, in a much more radical way than in the Husserlian argument against the mathematisation of plena in the Krisis (Husserl 1970).

[6] Knowledge proceeds by a progressive adaptation of ideas to facts (observation) and of ideas to each other (theory), and these processes constitute complementary and inseparable moments. The unity of science must be interpreted as an umbrella theory (Banks 2003) that can be applied to all phenomena, both physical and psychological. Mach′s theory is based on phenomenological principles without the need to explain these principles in terms of mechanisms of any kind′ (Banks 2014: 57). This is so, as Paolo Parrini points out, because phenomenological theory cannot deal with phenomena that lie beneath (*underneath*) those that are humanly observable, but because «behind appearances there are other appearances that demand to be analysed in the same way» (Banks, 2014: 59). Indeed, neutral monism claims that neutral elements remain within the circle of phenomenal appearances, and that it is not bodies that produce sensations, but

*Gradualism.* The reticular model proceeds not vertically but horizontally, not by levels but by degrees, or rather by differences. Contrary to the Standard View, in the network model there are no levels, e.g. a verticalisation between the theoretical and the observational levels (with the consequent need to identify appropriate rules of correspondence), but only a horizontal level in which some predicates (the 'observational' ones) are more anchored in experience and others (the 'theoretical' ones) less anchored, so that the distinction between observational and theoretical takes on a pragmatic, relative and contextual value (e.g. red and ultraviolet; heavy and mesonic), without the need to identify a set of predicates that identify a predicate as observational or theoretical in a stable and independent way.

Gradualism implies an interactive perspective on the notion of the given, capable of overcoming both its impermeability and its total fluidity. The given is plastic, yet capable of generating resistance and friction. The primitive recognition of similarity, learning language and nature together by means of ostension (Kuhn 1959, 1963, 1979), stands for this intermediate position, that is, the disposition to tacitly grasp networks of similarities and dissimilarities between empirical situations without the need to resort to the mythical language of neutral observation devoid of any theoretical contamination.

There are no absolutely theoretical or absolutely observational claims, only degrees of the theoretical and the observational (e.g. the affinity between physics and mathematics asserted by Mach and taken up by Quine). The network model prevents an absolute or metaphysical ulteriority: the role played by metaphysical discourse is perfectly fulfilled by that theoretical level which, located at the limits or periphery of the network, has the characteristics of maximum generality and abstraction.

Because of its metaphorical and revisable nature, the primary recognition of similarity, does not coincide with the observational assertion. In this way, the problem of circularity is avoided: the law under control becomes part of a network of empirical associations and nomological connections that constitute a pragmatically identified 'hard core' which allows the identification of areas of intersection between theories and thus epistemic dialogue. Indeed, the objections to the circularity of empirical control and incommensurability pre-

the complexes of elements (complexes of sensations) that form bodies: for, properly speaking: the real elements of the world are not things (bodies), but colours, sounds, pressures, spaces, durations (which we usually call sensations).

suppose the same standard, vertical, two-level, static model that is the object of deconstruction. The network model escapes these two objections because it avoids the thesis assumed by the Standard View.

*Force*. The network model is explicitly conceived by Quine and Hesse as a force field that replaces the set of attributes.

This point is particularly significant because it foregrounds a dimension that has traditionally been considered secondary or subordinate: the tacit (Polanyi 2002), non-verbalised and, in principle, non-verbalizable knowledge that conditions and determines observation, making it possible to speak not so much of an observational datum, as is usually the case, but of an observational power or observational disposition. This power and disposition are closely linked to a background or non-actual horizon: that implicit dimension that justifies the Gestalt reorientations that (for Kuhn as much as for Wittgenstein) underlie scientific change.

The point is the impersonality and historicity thesis: observation is always complemented by an activity based on the accumulated mental heritage (Mach 1976), guided by instinctive and intuitive factors (Mach 1976), by analogies and metaphors (Hesse 1953, 1980; Hesse, Arbib 1986), based on tacit, unexpressed and largely inexpressible knowledge (Polanyi 2002).

We have thus arrived at the point originally anticipated: moving from the network model to post-analytic or synthetic meta-philosophy.

## 3. The philosophy of post-analytic (or synthetic) philosophy

First, an important clarification is called for. To speak of post-analytic philosophy is not to deny the analytic stance, but to envisage a consistent revision of those aspects of this stance that are most compromised by an excessive fragmentation of philosophical discourse. The term 'post' must be understood here as overcoming, yet not in the sense of mere negation, but rather in the sense of complementarity: to quote Bachelard, not so much as development (*développement*), but as envelopment (*enveloppement*) (Bachelard 1968). The term post-analytic thus stands for a transformation of the received view in favour of a synthetic conception capable of preserving the 'healthy' spirit of the analytical method while overcoming its reductive and artificial aspects.

> In some of his later writings, Parrini takes the opportunity to attribute a metaphysical approach to Carnap (an operation «as risky as ever on the

> historical level and at least problematic on the theoretical one» (Parrini 2020: 160; translation mine). In an unequivocal and crystal clear manner and precisely in the wake of Carnap himself, he reaffirms the idea of «a philosophy freed from the shackles of both the a priori synthesis and the traditional metaphysical diatribes, in which claims are made to absoluteness and the transcending or exceeding of experience by invoking peculiar forms of intuitive knowledge and/or transcendental argumentation, different from those of the empirical sciences. This is the true scope of the philosophical operation that Carnap wanted to promote: not a re-founding of metaphysics, but an alternative way of conceiving philosophy in relation to metaphysics» (Parrini 2022: 114; translation mine).

Now, this alternative mode is a counterpart, in the realm of meta-philosophy, to precisely those assumptions which had characterised the network model at the epistemological level. In order to understand this, it is necessary to take up, as Parrini does, the ″review of the methodological assumptions underlying the analytic turn advocated by Russell in his essay (Russell 1919). In this essay Russell argues that

> By focusing on the study of logical forms, it becomes at last possible for philosophy to deal with its problems piece by piece, and thus, like the sciences, to obtain those partial and probably not altogether exact results which subsequent research can make use of by supplementing and improving them (...). The essence of philosophy thus conceived is analysis, not synthesis. (...) *Divide et impera* is the maxim which, here as elsewhere, guarantees success (ibid: 113).

Paolo Parrini's response is very clear:

> However, one should begin to wonder whether the *divide et impera* method has only advantages and not also some disadvantages, of which there are already some worrying signs. The importance and validity of analytical reflection are certainly not in question, nor are the merits of analysing and 'unpacking' problems in general. But philosophical issues are proving to be more complicated than Russell assumed in the essay just quoted. There is a widespread belief, at least in certain areas, that philosophy cannot be done by adopting the tactic that, according to legend, the last of the Horatii chose in order to defeat the three remaining Curiatii, i.e. to separate them and then face them one by one and win the challenge. In truth, this is not exactly how things work in science either. Even there, there is no clear alternative between a piecemeal approach and a systematic approach, but as we now know, science can still operate successfully because, except in times of exceptional conflict, it

> is able to make provisional and revisable assumptions of varying magnitude and duration, which it can modify, if necessary, on the basis of the results obtained. In the same way, philosophy has much less room for manoeuvre. Indeed, it must always take into account not only the inextricable interdependence between the problems it addresses, be they general or particular, but also the fact that, in addressing particular problems, it must from the outset come to terms with the existence of broad conceptions in competition with possible other conceptions based on different assumptions, presuppositions, or principles. The question of what is to be understood by metaphysics exemplifies precisely this connection between the 'local' and the 'global' that characterises philosophical discourse (Parrini 2022: 173–4; my translation).

At the meta-philosophical level, too, there is the inescapable integration and interaction that characterises the network model. This interconnectedness and interdependence allow us to propose again, even in meta-philosophy, the principles that we have seen at work in Quine's force field metaphor and in Hesse's network model, and which goes against the ideal of the 'fragmentation' and 'unpacking' of philosophical discourse. The authors who accompany Parrini on this last journey are Mach (reread, with completely new eyes, in the introduction to *Knowledge and Error* in 2017) (Parrini 2017, 2018a) and Carnap, or rather a *Carnap-like* philosopher (Parrini 2020).

Even at the meta-philosophical level, we can isolate the three concepts that characterise the network model: neutrality, gradualism and force.

*Neutrality*. On a meta-philosophical level, the theme of neutrality requires us to re-read the relationship between Logical Empiricism and Phenomenology, and to acknowledge Carnap's indebtedness to Husserl (which, in Parrini's view, is much more substantial than the literature suggests) (Parrini (2016, 2022); see also Lanfredini (2028, 2022)). I believe that the very term 'neutral' marks the greatest closeness, but also the greatest distance, between the two authors.

For Husserl, neutralisation is closely linked to *epoché* or phenomenological reduction, which, by placing the natural attitude in brackets, identifies an asymmetrical relation (insofar as it is based on a one-sided foundation) between *noesis* and *noema* as the neutralised (and therefore original) ground (Husserl 1983, 1989, 2001). On the contrary, for Carnap (following Mach and also James) the neutral ground is simply composed of relations in which the coagulation into poles (realism and idealism, phenomenalism and physicalism, instrumentalism and scientific realism, nominalism and Platonism, spiritualism and physicalism) is the effect and not the origin of the relation. In other words, contrary to Husserl (or more precisely, contrary to the static Husserl), it

is the nature of the structural relationship between elements that determines a polarity.

Beyond the relations between Carnap and phenomenology, in his later writings Paolo Parrini actually operates by constituting objects and concepts according to neutral principles based on coordination and topological connection, typical of the methodological model that is the rational reconstruction of the *Aufbau*. This is done by passing through the notion of explication in the direction of a model of *conceptual engineering* and *linguistic planning* (Parrini 2022a) that chooses the linguistic frames according to the problems to be solved and according to epistemic criteria analogous to those with which scientific theories are adopted. Once again, this is a method capable of overcoming dichotomies such as analytical/synthetic, a priori/a posteriori, external/internal, etc.

*Gradualism*. Once the neo-empiricist attempt to develop a formal criterion capable of drawing a sharp line between cognitively signifying and non-cognitively signifying discourse was abandoned, together with the conviction that the task of philosophy consisted in logico-linguistic analysis, philosophy became a complex agglomeration of concepts, languages, sub-languages, theoretical beliefs, methodological orientations and tacit assumptions – theoretical-conceptual developments resulting from the historical sedimentation of heterogeneous elements interwoven in different and often contradictory ways. This agglomeration requires an analysis that extends to several components of our presuppositional apparatus (descriptive metaphysics) and, if necessary, the designing of conceptual alternatives that aim to improve this apparatus by intervening at the level of linguistic and methodological theoretical structures (corrective metaphysics), going far beyond the blunt weapons of the verifiable theory of meaning and the analytic-synthetic distinction, or at any rate formal and universally applicable criteria of cognitive significance (Parrini 2020: 169).

However, it is still permissible to speak of differences of degree between theories of greater or lesser plausibility, and of a continuity between science and philosophy, even though it is not possible to draw a clear distinction between assumptions of great generality, nor to compare a conceptual scheme with a non-conceptualised reality.

*Power*. This is the point that Paolo Parrini would consider as most delicate, for two reasons: the first is that it is easy to slip into the metaphysics of force which is certainly the best form of metaphysics, since it is inspired by

Mach, but it is metaphysics nonetheless; the second is that force opens up the philosophical discourse to genetic analysis, a field that is too far for Carnap-like philosopher and the tradition of Logical Empiricism, which has always kept the genetic-evolutionary dimension at a distance (at least in words).

Yet if we turn to Parrini's introduction to Mach (in which he rereads Mach with new eyes) (Parrini 2017), the clues pointing in this direction are there, and they are numerous: the heuristic value that Mach attributes to the instinctive components of knowledge, by which he means impersonal principles rooted in everyday experience from time immemorial, an «obscure mass of experience in which the single fact cannot be distinguished» (ibid: 101); the recognition of non-subjective principles whose role is «indispensable for orienting us among the myriad data of experience, for suggesting experiments and for interpreting them » (ibid: 60); and even the claim that «what we observe in nature imprints itself – still misunderstood and unanalysed – in our representations» (ibidem).

This is a reading of the cognitive discourse from a historical perspective («History – says Mach – has done everything and can do everything»), understood not as mere historicism but as an *«evolutionary vision of knowledge, seen as the instrument in man's hands to achieve an ever more* profitable adaptation to the environment» (ibid: 28). The task is not so much to search for a hidden reality behind the phenomenal world, as to establish functional connections between the various data of experience. In this 'science in progress', the only goal is to discover connections between phenomena, and theories are to be regarded as «dry leaves that fall after the organism of science has been allowed to breathe for a time» (Mach 1976: 46).

This rooting of the principles of science in common experience, which Mach (like Poincaré) considers atavistic and ancestral, shifts the focus from logical justification and objective validity to the network of relationships or connections within a system.

This shift allows us to frame the network model at a more general level, first meta-theoretical and then meta-philosophical, in the direction of that biological turn that, I believe, forms the background to a radically neutral and gradualist approach.

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