

A.N. Whitehead's
Thought through
a New Prism

The European Studies in Process Thought is a book series devoted to the historical and systematic study of process philosophy in all its aspects. Although it is indebted to a philosophical tradition, in particular to the works of William James, Charles S. Peirce, Henri Bergson, Samuel Alexander and Alfred N. Whitehead, it is not dogmatically restricted to specific authors. It also aims at exploring various philosophical problems against the background of process thinking, i.e. the position that reality is in a continuous state of becoming and defies all attempts to provide definite and irrefutable answers or theories

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A.N. Whitehead's Thought through a New Prism

Edited by

Aljoscha Berve and Helmut Maaßen

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A.N. Whitehead's Thought through a New Prism
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Edited by Aljoscha Berve and Helmut Maaßen

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LIST OF ABBREVIATIONS

- AE: Whitehead, Alfred North. *The Aims of Education and Other Essays*. New York: The Free Press, 1967.
- AI: Whitehead, Alfred North. *Adventures of Ideas*. New York: The Free Press, 1967.
- CN: Whitehead, Alfred North. *The Concept of Nature*. Cambridge: Cambridge University Press, 1964.
- PNK: Whitehead, Alfred North. *An Enquiry Concerning the Principles of Natural Knowledge*. Cambridge: Cambridge University Press, 2011.
- ESP: Whitehead, Alfred North. *Essays in Science and Philosophy*. New York: Philosophical Library, 1947.
- FR: Whitehead, Alfred North. *The Function of Reason*. Boston: Beacon Press, 1958.
- IM: Whitehead, Alfred North. *An Introduction to Mathematics*. Oxford: Oxford University Press, 1958.
- MT: Whitehead, Alfred North. *Modes of Thought*. New York: The Free Press, 1968.
- OT: Whitehead, Alfred North. *The Organization of Thought*. London: William Norgate, 1917.
- PR: Whitehead, Alfred North. *Process and Reality: An Essay in Cosmology. Corrected edition. Edited by David Ray Griffin and Donald W. Sherburne*. New York: The Free Press, 1978.
- R: Whitehead, Alfred North. *The Principle of Relativity with Applications to Physical Science*. Cambridge: Cambridge University Press, 1922.

- RM: Whitehead, Alfred North. *Religion in the Making*. New York: Meridian Books, 1960.
- S: Whitehead, Alfred North. *Symbolism, Its Meaning and Effect*. New York: Macmillan, 1927.
- SMW: Whitehead, Alfred North. *Science and the Modern World*. New York: The Free Press, 1967.

PREFACE

This volume is a selection of the papers presented at the “Second European Summer School for Process Thought” which took place in Mülheim, Germany, from August 5-10, 2012, with generous financial support from the Hocking-Cabot Fund for Systematic Philosophy.

It is also the third volume of the reinvigorated series, “European Studies in Process Thought”, a series designed to promote and discuss Process Philosophy across Europe in all its facets and nuances. Both the Summer School and the series demonstrate the growing popularity of process thinking in Europe. To reinforce and coordinate this trend, the “European Society for Process Thought” (ESPT) was established in 2012. The ESPT organized the “European Summer School for Process Thought” and is publishing the series “European Studies in Process Thought”.

The history of European scholarship in Process Philosophy has seen ebbs and flows. Even the very term “Process Philosophy” might be said to be ambiguous. While usually the term “Process Philosophy” is associated with the American tradition of Charles Sanders Peirce, William James, John Dewey and Alfred North Whitehead, from the perspective of European philosophical tradition certain German philosophers of the 19th century, most importantly Friedrich Wilhelm Joseph Schelling and Georg Wilhelm Friedrich Hegel, could also be said to have put forward systems of Process Philosophy. This ambiguity points to one of the most important characteristics of Process Philosophy: Unlike in other fields of philosophy, only a few philosophers describe themselves explicitly as being a “Process Philosopher”. Peirce, James, Dewey, Whitehead, Schelling and Hegel would usually first and foremost be related to other philosophical schools, such as Pragmatism, Radical Empiricism or German Idealism and not *prima facie* to Process Philosophy. A good example of this can be found in Alfred North Whitehead: Although he is usually considered to be the seminal representative of Process Philosophy, Whitehead himself used to refer to his philosophy as the “philosophy of organism”.

The ESPT was established to explore this multifacetedness of Process Philosophy within the philosophical discourse in Europe and to further all

endeavours to stimulate debate on this topic, with all its inherent potential and tensions. In doing so, the ESPT can build upon the groundwork of its predecessor. As early as 1978, a “European Society for Process Thought” was founded, and it was run for two decades by Jan van der Veken of the University of Leuven, Belgium. Its focus was mainly on the philosophy of Alfred North Whitehead. Early Whitehead-scholars, such as Dorothy Emmet, were making his philosophy popular in Europe. During the eighties, a manifest interest in Whitehead amongst German philosophers led to conferences and accompanying proceedings, published by Friedrich Rapp, Ernst Wolf-Gazo and Reiner Wiehl, and, most importantly, the German translation of “Process and Reality” by Hans Günter Holl in 1987. In France, the French perception of Whitehead has in the first years of the millennium led to books by Bertrand Saint-Sernin and Isabelle Stengers. In addition, Michel Weber has been publishing the “Chromatiques Whiteheadiennes” in both English and French for many years.

The ESPT intends to broaden its aspirations in two ways, both of which are a reaction to changes in the landscape of philosophical discourse: Firstly, the fall of the Iron Curtain has opened up paths for collaborative philosophical discussions for the scientific communities of Eastern Europe. Process Philosophy has sparked interest in Eastern Europe: in Poland, the “Polish Metaphysical Society” is a very active community; in Bulgaria, Vesselin Petrov is working on the relevance of Milic Capek as a process philosopher from the perspective of sciences. Ella Csikós has worked on Hegel and Whitehead in Hungary. At the other end of Europe, Maria-Teresa Teixeira has presented a Portuguese translation of “Process and Reality”. It is evident that the European discussion of Process Philosophy has moved well beyond the range it occupied in the past. Secondly, the notion of “Process Philosophy” has become broader in recent decades. While a discussion of Process Philosophy in the past usually concentrated on the philosophy of Alfred North Whitehead, it now also focuses on other thinkers. Vesselin Petrov’s work on Milic Capek is a good example of this broadening of scope.

The mandate of the “European Studies in Process Thought” is indicated in this outline. In order to bring diverse multi-lingual philosophical communities together in a discussion of Process Philosophy the “European Studies in Process Thought” intends to be as open as possible for different endeavours in Process Philosophy. To maintain the speculative reach of process thinking, the series proposes to refrain from any attempts to simplify the topics it is dealing with, by setting or following agendas, even

where a reduction of the complexity that is inherent to most of Process Philosophy could yield a handy field of application. Narrowing down the scope of process thinking to a particular problem runs the risk of instrumentalizing a theory meant to explore the wide sweeps of abstract thought. The “European Studies in Process Thought” mirror the outstanding characteristics of Process Philosophy: the speculative reach that tries to abstain from dogmatic constringence, the openness for new discoveries and the creative impulse, which sometimes even revises accepted positions.

In the current volume, this approach is used to examine the philosophy of Alfred North Whitehead. His system of metaphysics is uniquely suited to exemplify the versatility and scope of Process Philosophy.

The work of Alfred North Whitehead (1861 – 1947) has always resisted easy classification. Any attempt to discuss Whitehead in scientific debates has to start with one basic question: within the bounds of which discipline should his writings be considered? Indeed, even distinguishing between his contributions to mathematics, physics and philosophy sometimes seems to be an endeavour motivated by the conventions of scientific disciplines rather than by implicit distinctions between his various contributions to academic discourse. If justice is to be done to one of the last true polymaths of modern science, Whitehead’s different publications cannot be conceived as dealing with separate topics: dealing with one aspect of his oeuvre will always imply the whole. This also means that claiming Whitehead as an authority for specific causes – however noble these endeavours may be – will narrow the generality of his ideas to a constricted and easily applicable set of notions. Whitehead would probably have cited his ideal of speculative thought as the sole motivation for his scientific corpus: to seek “with disinterested curiosity an understanding of the world”.

Of course, every discussion of Whitehead stems from a certain academic discipline and therefore deals with his work from a particular perspective. Over the years, the different disciplines have addressed a few topics on Whitehead with notable interest. In mathematics, the three volumes of the *Principia Mathematica*, a result of his collaboration with Bertrand Russell, are still the context with which Whitehead is mainly connected. Since the ultimate relevance of the *Principia Mathematica* has been debated controversially, almost from the date of its publication, Whitehead’s legacy in the scientific discipline on which he spent most of his time

heavily depends on the significance attributed to the *Principia Mathematica* to this day. Although he never held an official position in physics, Whitehead's contributions to what he himself experienced as a revolution in physics at the turn of the century are innumerable. From his dissertation on Maxwell's work on electromagnetism to the proposal of his own theory of gravity and an alternative theory of relativity, he was involved in the most important contemporary debates in physics. His theories of gravity and relativity have been refuted by modern physics, although it has taken until recently to proclaim the final verdict "On the Multiple Deaths of Whitehead's Theory of Gravity." Rather than as a direct contributor, he figures in contemporary physics as an indirect influence, e.g. on David Bohm.

Given this legacy in natural sciences, it is important for scholars to determine the perspective from which they want to approach Whitehead. It might be said that Whitehead never abandoned his topics of interest, but rather was accompanied throughout his academic career by the same issues and simply transformed the discussion by shifting his approach. From the envisaged discussion of the nature of geometry in the fourth volume of the *Principia Mathematica*, which never materialised, to his mathematical lecture *The Relationist Theory of Space* and finally to the enigmatic fourth part of *Process and Reality* that deals with his concept of the extensive continuum, Whitehead's lifelong preoccupation with the notion of extension seems to transcend the boundaries of different academic disciplines. For him, the problem of extension was a topic that arose from geometry but was ultimately settled within the much more comprehensive context of his philosophical cosmology. Arguably Whitehead's entire metaphysical theory, in which the concept of relationality plays such an important role, perpetuates his dealings with modern physics, especially with the theory of relativity.

The appeal of Whitehead's philosophy lies in this very intricate and multi-layered connection of different topics from various disciplines in one comprehensive theory. However, for many scholars, the same reason is also the source of discontent with Whitehead: His philosophy does not integrate well into familiar patterns of philosophical tradition. On the one hand, we expect a philosophical system which specifically seeks connections to scientific methods to refrain from claiming ultimate grounding in metaphysics and instead to emphasise some form of empirical reality. On the other hand, we are surprised when a system of thought which puts great emphasis on cultural phenomena, such as

civilization, aesthetics, religion or historical processes, also seeks close proximity to scientific discourse. In physicalistic philosophical theories of the 20th century, metaphysical considerations of God or ideal forms are usually irrelevant, and the philosophy of culture mostly refuses to pay regard to problems of contemporary physics.

In order to understand Whitehead as a philosopher, without committing what he calls the “fallacy of misplaced concreteness” by unduly narrowing his speculative reach, it is necessary, first and foremost, to establish the scope of his thinking, spanning the diverse disciplines and topics he was interested in. The volume at hand aims to encourage and foster this enterprise. A result of the “Second European Summer School for Process Thought” that took place in 2012 in Mülheim, Germany, this volume is the combined effort of Whitehead-scholars from all over Europe. The contributions illustrate the wide scope of Whitehead’s interests and present advantageous starting points to explore the cornucopia of Whitehead’s Process Philosophy.

PART I:
METHODOLOGY

ON THE RELATION OF *THE FUNCTION OF REASON* AND *PROCESS AND REALITY*

MARTIN KAPLICKÝ

If we mention the name of Alfred North Whitehead in a philosophical context, most scholars will probably connect him mainly with his masterpiece – *Process and Reality*, published in 1929. Only scholars with a deeper interest in Whitehead’s philosophical works would know that in the same year another of Whitehead’s books was published – *The Function of Reason*. The main aim of this paper is to highlight the interesting relationship between these two philosophical books.

The two aforementioned books are very different. In *Process and Reality* Whitehead fully formulated and thoroughly discussed the conceptual scheme of his original speculative philosophy, or as he himself called it – philosophy of organism. In his definition: “Speculative Philosophy is the endeavour to frame a coherent, logical, necessary system of general ideas in terms of which every element of our experience can be interpreted” (PR, 3). The aim of *The Function of Reason* is in all respects more humble – it is his own philosophical contribution to the discussion of the old philosophical question of Reason, its essence and function. Whitehead even states: “Of course this is a hackneyed theme. Its discussion stretches back to the very beginnings of philosophic thought. But it is the business of philosophers to discuss such fundamental topics, and to set them on the stage illuminated by our modern ways of thinking” (FR, 1). The main aim of *Process and Reality* is thus the elaboration of the most general philosophical scheme and the main aim of *Function of Reason* is to discuss one concrete philosophical issue. From this perspective, we could assume that the relationship between the two books is very simple: that *The Function of Reason* is an application of the conceptual scheme of *Process and Reality* on a particular problem – the problem of Reason.

This assumption could be supported also by the fact that both books are based on previous lectures. *Process and Reality* is based on the Gifford Lectures held in 1927 and 1928 at Edinburgh University, and *The Function of Reason* on the Louis Clark Vanuxem Lectures held in 1929 at

Princeton University. We could therefore assume that Whitehead had in mind the basic outline of the conceptual scheme of *Process and Reality* while writing his shorter book. In this paper I will try to show that the two books are closely related, and that *The Function of Reason* is not only an application of the conceptual scheme of *Process and Reality* but that it elucidates some aspects of Whitehead's philosophical method which are not explicit in his masterpiece. This is of course not the only relation that the books have, but it is a relation which has not yet been elaborated in current academic literature.

As I have pointed out, Whitehead's aim in *Process and Reality* is very ambitious. The question is how to construct a philosophical system in terms of which every element of our experience can be interpreted; and what exactly does this phrase mean? In order to explain the question I will quote Whitehead's famous definition of Speculative Philosophy in full:

Speculative Philosophy is the endeavour to frame a coherent, logical, necessary system of general ideas in terms of which every element of our experience can be interpreted. By this notion of 'interpretation' I mean that everything of which we are conscious, as enjoyed, perceived, willed, or thought, shall have the character of a particular instance of the general scheme. Thus the philosophical scheme should be coherent, logical, and, in respect to its interpretation, applicable and adequate. Here 'applicable' means that some items of experience are thus interpretable, and 'adequate' means that there are no items incapable of such interpretation. (PR, 3)

It is one of the most quoted phrases in Whitehead's work and we could spend hours interpreting it, but I would like to draw attention only to one important moment. Speculative philosophy is the "endeavour", it is not a stating or inferring of some definite facts. It is a construction of a scheme which is always submitted to criticism and corrections. According to Whitehead the schemes of speculative philosophy are tentative formulations aiming at high generalities rather than statements of certain and obvious facts. Each philosophical scheme is an "interpretation" of experience and no interpretation is the final and definite one. Nevertheless, the philosophical scheme of speculative philosophy is aiming at its ideal to be a "coherent, logical, necessary system of general ideas". What is interesting is that even in the above mentioned quotation we can see the progress right before our eyes, because the term "necessary" is substituted in the following sentences by the terms "applicable" and "adequate". These two terms are contrasted with the terms "coherent" and "logical". These two pairs of concepts express the rational and empirical sides of speculative philosophy. Roughly speaking, we could say that the rational

side (coherence and logical) concerns the mutual relations of the concepts in the framework of the conceptual scheme and the empirical side (applicable and adequate) concerns the relations of the concepts to facts of experience.

Therefore in this context the term “necessary” means the interconnectedness of the whole philosophical system with all facts which we can experience, not an initial certainty or infallibility of basic principles of the system. A philosophical system cannot exclude any fact of experience as irrelevant to its study. For speculative philosophy each and every fact is relevant.

The important point at this stage is that, according to Whitehead, in speculative philosophy these two aspects (empirical and rational) are closely bound together. It is not possible to infer one side from the other or subordinate one to another. This togetherness of the two sides of speculative philosophy imposes strong requirements on the method of speculative philosophy. This method has to respect both sides in their mutual relevance. From this point of view Whitehead criticises two traditional philosophical methods – the inductive method of the Baconian type and the deductive axiomatic method. In this respect we could say that rigid induction overestimates the empirical side and conceives the rational side only as being derivative from the first one and the purely deductive axiomatic method conversely overestimates the rational side of the philosophical scheme whilst underestimating the empirical side of philosophy.

Rigid induction presupposes clearly given and separated uninterpreted facts, which we can consequently simply describe. According to Whitehead there are no uninterpreted facts which we could easily label with the basic notions and thus evolve the conceptual scheme. As he notes:

Our habitual experience is a complex of failure and success in the enterprise of interpretation. If we desire a record of uninterpreted experience, we must ask a stone to record its autobiography. Every scientific memoir in its record of the ‘facts’ is shot through and through with interpretation. The methodology of rational interpretation is the product of the fitful vagueness of consciousness. Elements which shine with immediate distinctness, in some circumstances, retire into penumbral shadow, in other circumstances, and into black darkness on other occasions. And yet all occasions proclaim themselves as actualities within the flux of a solid world, demanding a unity of interpretation. (PR, 15)

The quotation shows in the first place that our experience does not have the character of registering a given fact which we could later interpret. The results of our experience are already interpretations. We do not have an

uninterpreted fact at the beginning of our investigation. The second part of the quotation shows us another reason for the failure of the rigid inductive method. A method of observation is always dependent on the context of the observing situation, on its background. The method of inductive observation would have to collect all possible contexts of observations and this task is principally impossible. For penetrating into the background of a situation an imaginative development of the observed fact is necessary, but this development transcends the rigid inductive method.

According to Whitehead, the method of strictly axiomatic deductive derivation has a similar problem. This method ideally begins with a set of self-evident and primarily unrelated axioms. But we live in a world where things are connected in various ways. We do not have self-evident principles on hand. Whitehead states:

Philosophy has been haunted by the unfortunate notion that its method is dogmatically to indicate premises which are severally clear, distinct, and certain; and to erect upon those premises a deductive system of thought. But the accurate expression of the final generalities is the goal of discussion and not its origin. Philosophy has been misled by the example of mathematics; and even in mathematics the statement of the ultimate logical principles is beset with difficulties, as yet insuperable. The verification of a rationalistic scheme is to be sought in its general success, and not in the peculiar certainty, or initial clarity, of its first principles. (PR, 8)

Whitehead draws our attention to the fact that even logically perfect rational schemes may have problems dealing with facts. The result would be that these facts would be neglected or directly denied. But as we saw above, the philosophical scheme of speculative philosophy should not neglect any fact.

To sum these considerations up, according to Whitehead there are no uninterpreted facts or certain axiomatic principles from which we can start the development of a philosophical system. Each fact can suffer from hidden interpretation and each so called certain principle can suffer from the ignorance and denial of important facts. How then should we proceed to construe a philosophical system of maximum coherence, logic and necessity? Whitehead calls the appropriate method the method of descriptive generalization. As he states:

[...] empirically the development of self-justifying thoughts has been achieved by the complex process of generalizing from particular topics, of imaginatively schematizing the generalizations, and finally by renewed

comparison of the imagined scheme with the direct experience to which it should apply. (PR, 6)

In this method we can see the mutual interrelation of the empirical and the rational side of philosophy; no one is subordinated to the other. We start our observation from a limited field of experience, imaginatively construe the basic conceptual scheme and again test the evolved scheme with newly understood experiences. This procedure has therefore three basic steps, and Whitehead illustrates them with a comparison to the flight of an aeroplane: its start, flight and landing. In this procedure the empirical and rational sides support each other. This three step procedure will have a spiral character because the conceptual scheme of speculative philosophy should be applicable not only in the original field of experience but in each experiential field. As Whitehead notes:

The success of the imaginative experiment is always to be tested by the applicability of its results beyond the restricted locus from which it originated. In default of such extended application, a generalization started from physics, for example, remains merely an alternative expression of notions applicable to physics. (PR, 5)

It means that we have to widen metaphorically the meaning of words originally used in one field to express the characteristics of another field. But that is not all; a scheme derived from an originally limited field of experience should allow us to conceive new facts in other fields. It should discover new aspects of the field with the help of originally unknown terms.

After this introduction to the method of speculative philosophy we would expect Whitehead to show us the original field of his philosophy and the process of imaginative generalization of the basic conceptual scheme. Surprisingly he does not. He instead directly continues with the list of the definition of basic categories of his philosophy (The categories Ultimate, Existence, Explanation and Obligations). This list may even resemble the basic axioms of the deductive axiomatic method, which Whitehead repudiated.

We shall see later that the definitions do not have the character of self-evident axioms, because they are strongly interconnected and mutually dependant. The category of 'Ultimate' does not even enter directly into the explanatory scheme, nevertheless it constitutes the basic principle, the basic metaphor of the whole system. Whitehead does not proceed by inferring new theorems from these definitions but shows how the whole philosophical system can treat empirical facts and old philosophical

problems. Nevertheless, Whitehead presents us with an imagined and definite conceptual scheme and then the “[...] renewed comparison [...] with the direct experience to which it should apply.” (PR, 16) But this is only the third and final step of his method of descriptive generalization. The first two steps are not shown to us. Namely: (1) The Process of generalization from a particular topic; and (2) Imaginative schematization of the received generalization.

The important part of the process of descriptive generalization is therefore hidden; it is not explicitly shown in *Process and Reality*. I will try to show that we can find these two first steps of his method in *The Function of Reason*.

As we saw above, *The Function of Reason* is devoted to one particular philosophical problem, the problem of Reason. It is typical, and in agreement with his method of descriptive generalization, that this concrete theme is considered in the background and in accordance with the widest scope of his consideration. This moment is illustrated even at the very beginning of the book in the “Introductory Summary”:

History discloses two main tendencies in the course of events. One tendency is exemplified in the slow decay of physical nature. With stealthy inevitableness, there is degradation of energy. The sources of activity sink downward and downward. Their very matter wastes. The other tendency is exemplified by the yearly renewal of nature in the spring, and by the upward course of biological evolution. In these pages I consider Reason in its relation to these contrasted aspects of history. Reason is the self-discipline of the originative element in history. Apart from the operations of Reason, this element is anarchic. (FR, Introductory Summary)

Here we can see that Reason is considered in the context of the two opposite tendencies which penetrate the whole world. But in *The Function of Reason* we can see also the opposite strategy: to see the whole universe from the perspective of a conceptual scheme derived from the analysis of Reason. This moment perfectly harmonizes with Whitehead’s method of descriptive generalization – testing the imaginative scheme beyond the field of its origin. Firstly I have to introduce Whitehead’s first definition of Reason and its function.

I will start with a preliminary definition of The Function of Reason, a definition to be illustrated, distorted, and enlarged, as this discussion proceeds. *The function of Reason is to promote the art of life.* (FR, 2)

This starting point of his considerations is also in perfect harmony with Whitehead's claim of descriptive generalization. Whitehead does not begin here with some obvious self-evident axioms but with a tentative definition which will be modified. It is like repeated flights of an aeroplane. If we get through the first chapter of *The Function of Reason*, we find at least six different and still more precise definitions of Reason. Here I will concentrate only on the discussion of three of those. In connection with the first above mentioned definition, Whitehead criticizes the Darwinist evolutionary theory and especially its phrase "survival of the fittest" which is closely related to the narrow, strict concept of the adaptation of an organism to its environment. From the Darwinist point of view, it would seem that the "art of live" means "to survive" in the sense of adaptation to the environment. Whitehead, however, argues that an organism not only adapts to its environment but also transforms it. According to Whitehead this transformation is guided by a "three-fold urge", (1) to live; (2) to live well; (3) and to live better. It is shown therefore that the Darwinist theory is useful only to a certain extent, and therefore cannot satisfy the claim of metaphysical universality. But the urge to live better is the urge toward something which does not yet exist in actuality, and could only be imagined. It is the urge toward potentiality. To emphasize this point, Whitehead first modifies his initial definition and offers a second one:

This conclusion amounts to the thesis that Reason is a factor in experience which directs and criticizes the urge towards the attainment of an end realized in imagination but not in fact. (FR, 5)

In this context Whitehead criticizes another influential doctrine of his time which did claim its universal scope. He calls it the strictly physiological doctrine. This doctrine claimed that there are no other basic principles of explanation than direct efficient causality. To understand anything is to find its efficient cause. In fact Whitehead is talking here about all mechanistic philosophies; about strategies of explaining the complex activity of organisms by reducing it to physical or chemical reactions. In connection with his above mentioned definition of Reason he notes: "From the point of prevalent physiological doctrine this thesis is complete heresy". (FR, 6) Yet Whitehead shows in the subsequent discussion that there is a lot of evidence which is omitted by the physiological doctrine because these activities are not directed by efficient causation but by final causation. In Whitehead's conception a final causation is a causation which is led by an imaginatively construed aim. He shows that human behaviour is dominated by an aim, by final causation: writing an essay,

building a ship, voting in elections etc. All these types of activities are governed by a final cause. Later, Whitehead formulates another definition of the function of Reason in terms of final causation:

Provided that we admit the category of final causation, we can consistently define the primary function of Reason. This function is to constitute, emphasize, and criticize the final causes and strength of aims directed towards them. (FR, 21)

He concludes therefore at this point that the doctrine of the strict physiologists has limited the scope of explanation and therefore is not a valid candidate for the scheme of speculative philosophy. But if physiology and Darwinism are not the candidates for success, it is possible that the omitted final causality could be promising. Whitehead proceeds to make the following statement.

In the animal body there is, as we have already seen, clear evidence of activities directed by purpose. It is therefore natural to reverse the analogy, and to argue that some lowly, diffused form of the operations of Reason constitute the vast diffused counter-agency by which the material cosmos comes into being. This conclusion amounts to the repudiation of the radical extrusion of final causation from our cosmological theory. (FR, 20f.)

Here we have a metaphorical leap. Whitehead is suggesting the possibility of using the term of final causation, which has its origin in a limited field of experience (human creative experience), for explaining another field of experience. He was well aware of the fact that he could easily overestimate the relevance of final causation and make an analogous fault to those of the radical physiologists. He is therefore looking for a scheme which would respect both types of causality:

A satisfactory cosmology must explain the interweaving of efficient and of final causation. Such a cosmology will obviously remain an explanatory arbitrariness if our doctrine of the two modes of causation takes the form of a mere limitation of the scope of one mode by the intervention of the other mode. What we seek is such an explanation of the metaphysical nature of things that everything determinable by efficient causation is thereby determined, and that everything determinable by final causation is thereby determined. The two spheres of operation should be interwoven and required, each by the other. But neither sphere should arbitrarily limit the scope of the alternative mode. (FR, 22f.)

Whitehead arrives at a statement of the highest generality based on the consideration of a limited field of experience and through imagination

schematizes the basic universal principles. Here we have the first two steps of the method of descriptive or imaginative generalization: 1) The Process of generalization of a particular topic; and 2) The first draft of schematizing the received generalization. But in *The Function of Reason* Whitehead does not show us how exactly the spheres of final and efficient causation can be interwoven. After this digression into metaphysics he continues with a detailed analysis of the forms of reason.

If we return to *Process and Reality*, we will find this interweaving of final and efficient causation even in his category 'Ultimate'. We can read here:

The ultimate metaphysical principle is the advance from disjunction to conjunction, creating a novel entity other than the entities given in disjunction. The novel entity is at once the togetherness of the 'many' which it finds, and also it is one among the disjunctive 'many' which it leaves; it is a novel entity, disjunctively among the many entities which it synthesizes. The many become one and is increased by one. (PR, 21)

We can identify two processes – one is dominated by final causation and the second is dominated by efficient causation. We can say that Whitehead's finding of the togetherness of the many is dominated by final causation but leaving the disjunctive many is dominated by efficient causation. What is very important is that both processes require each other. As Whitehead reminds us "The term 'many' presupposes the term 'one' and the term 'one' presupposes the term 'many'." (PR, 21) It is not a surprise that the specific interweaving of final and efficient causation constitutes Whitehead's eighteenth key category of Explanation.

(xviii) That every condition to which the process of becoming conforms in any particular instance has its reason either in the character of some actual entity in the actual world of that concrescence, or in the character of the subject which is in process of concrescence. This category of explanation is termed the 'ontological principle.' It could also be termed the 'principle of efficient, and final, causation.' (PR, 24)

We can see that the principles which Whitehead discriminated against, based on the considerations of one limited scope of experience in *The Function of Reason*, lie at the very heart of the speculative scheme of *Process and Reality*. *The Function of Reason* therefore can offer us the missing steps of Whitehead's method of descriptive or imaginative generalization.

Therefore we can conclude that the relation of the two books is very complex. The *Function of Reason* shows us the basic metaphor of

Whitehead's speculative philosophy (human creative experience), but *Process and Reality* offers us a precise conceptual scheme developed from this basic metaphor and a thorough application of this scheme to our reality. His system of categories does not constitute an axiomatic matrix. It is a development of a conceptual scheme that is capable of describing the specific interweaving of efficient and final causes as the key to understanding the nature of reality.

THE IMPLICIT LOGIC OF WHITEHEAD'S METAPHYSICAL SYSTEM

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“An axiom is a shame to logic but a masterpiece of thinking” (D. Szilágyi)

An implicit logic is a non-formalized type of logic which does not build a special part of a system on a separate theoretical level, yet it is applied as a mode of thinking and argumentation – more or less consequently – throughout the system without being a discipline abstracted from the systematic components. It remains implicit in Whitehead's case too, because he does not reflect *philosophically* 1.) on his own applied *methodology* of constructing a philosophical system, 2.) on the treatment of the systematic relations within the network of theoretical *notions*, 3.) on an unequivocal interpretation of the connection between *principles*, 4.) on the consequences of the applied sort of *axiomatization* in his most systematized work “Process and Reality”. Various *advantages* can be gained if we try to reconstruct the dominant feature of the hidden logic penetrating his system. To articulate the tacit logic of such metaphysics is fruitful – or even necessary – because we can then understand the structure of the system in a clearer manner, so that it can be made more comprehensible in its inner conceptual connections. Also its *criticism* can be more precise, the whole system becomes more objectionable, that is, any benevolent, accomplishing or amending criticism can function more constructively and effectively. The logical *coherency* can be enhanced in this way: the assertive elements of the content of the system (beyond the formal aspects) can be made more coherent and formed more precisely by eliminating some logically unnecessary (or even metaphysically redundant) components of the system. The system can be *founded to a greater extent* and confirmed, if completed, by gaining a meta-theoretical level, thus supporting it on solid and explicit logical grounds. Finally, Whitehead's metaphysics can be *updated* if bound more tightly to other contemporary tendencies; namely, what the whole of 20th century philosophy suggests as a moral: a philosophical position without profound

self-reflection can hardly face the aims and claims of today's society and the requirements of scientific thinking.

1. The Fundamental Concept

My approach starts from the supposition that a special *attitude to the general character of being*, itself a special category of being, is involved behind *every* metaphysical system. Whitehead's speciality in this core attitude is that he substitutes the *static* concept of being by *becoming*, namely, a being interpreted as the *unity* of both being and possibilities, an *open and dynamic* being. The fundamental notion, in Whitehead's words "the primary emphasis", of the system has a *contradiction* in itself: it is a being in perpetual transition from itself into itself remaining inside reality, a being in change open to not yet existing possibilities, it is being and not-being, being and its nothingness together. This contradictory character of the initial core concept will then be inherited by the subsequent composite elements of the system and determines all following logical-methodological steps and relations in the network of the concepts of metaphysics. What we have here is metaphysics in the classical sense: the aim of Whitehead's system is to understand the main characteristics of being through a *rational systematization* of the vague and always perspectival experience. The system should be fully comprehensive: "Philosophy can exclude nothing." (MT, 2) Whitehead's procedure is, in the beginning, the well known rationalistic method of throwing a *conceptual net* over the complexity of multiple world phenomena, a sort of *modelling* before the background of a preferred attitude to being: the result is a never fully articulated approximative model of the experienced world¹. But as the special core concept chosen here is no longer the typical one in static metaphysical systems, the mode of understanding and explicating too, will nuance the standard rationalistic type of modelling. The starting and founding position is based on the net of introduced concepts deriving from *being with potentialities*, burdened by inner tensions. The logical relation between the concept of dynamic being and the most general *systematic* concepts is not clarified by Whitehead; the explicitly used initial concepts stem from a hidden "intellectual *decision*" and have an axiomatic character, they are not derived from anything in a scientific sense but standing in themselves: "There are no definitions of such

¹ "Such a process is, of course, unending. All that can be achieved is the emphasis on a few large-scale notions, together with attention to the variety of other ideas which arise in the display of those chosen for primary emphasis." (MT, 3)

notions. They are incapable of analysis in terms of factors more far-reaching than themselves."² (MT, 1)

One feature of an applied implicit logic is the manner of building arguments. The mode of argumentation used by Whitehead originates from this interpretation of initial notions cited above: the dominant *type of argumentation* – that is the procedure aiming to comprehend and explain what is given – for Whitehead in the case of fundamental/final questions can be only the *reductio ad absurdum* type. Because he regards axiomatic starting points as concepts without definitions for which a positive proof cannot be given, he can identify only an *indirect ground* as a foundation of the system. Namely, that it cannot be thought otherwise, because it would violate logical laws (which would lead to absurdity signifying an inner boundary of thinking), and could not be adequate to experience either. Philosophical knowledge consists for him necessarily of a *synthesis* of two sources: argumentation (which represents *generality*) and experience (that is *particularity* which is always “on the edge of consciousness” (MT, 6) and transcends rational thinking in this sense). Indirect argumentation leads in this way to a ground which can be evaluated and legitimated only retroactively in respect of the completed system.

Which *basic* arguments can be identified in Whitehead's writings, determining the whole exposition of the starting conception? There are two of them: 1.) If there are no *possibilities*, then there could not be any *novelty* or creativity in the world (while the vision of a static world represents an alternative ontology which may be possible – with some restrictions – but unacceptable to Whitehead because it would hurt his fundamental concept). Even more important is the second argument: 2.) If all possibilities, including contradictory ones, could be *actualized at the same time* as a full and complete world, then process (an evolving world) would not be necessary or even possible. But as some alternatives *exclude* each other, this world must exist (just now with the characteristics of our cosmic epoch). The exclusiveness is evolving during time, to put it more appropriately, it produces time – without being absolutely exhaustive; because “in the nature of things there are no ultimate exclusions.” (MT, 76)

Problems concerning this solution to the question of a philosophical reconstruction of the necessity of the given world can of course arise: in what sense do possibilities exclude each other? Does the exclusion result from universal *physical* laws or are there final *logical* constraints? It is also problematic, whether there are any possibilities at all which

² On the axiomatic method in Whiteheadian metaphysics see: Simons (2008), 304-307.

principally cannot be actualized or whether all of them will emerge, each in turn? As we can see, the ancient, classical philosophical problem hides in the background, for Whitehead as for all prominent thinkers: what are the final determinants, what is the ground/cause of the *existence of the world* at all? So it has great significance to identify what sort of logic is implicated in an attempt at exploring a satisfactory answer.

2. Logic as Subject

Is the logic used by Whitehead really hidden? The concept of logic is sometimes and in some places thematized in his works, although these remarks are not explicated in an interconnected, theoretic way; his spontaneously applied logic is not submitted to a really *philosophical* analysis, his applied logic has remained in the long run irreflexive. An exception seems to be logic as a topic in the early work “Organization of Thought” from the year 1917. The essence and the function of logic – according to his conception at that time – are formulated here, but in a period of his life when his later metaphysical system had not yet been elaborated. So we can find meaningful hints in this work which point forwards, but there are also problems remaining to be solved in the later phase.

The special *sense of logic* in the focus here is the mode of handling the *relations between notions* in metaphysics. Whitehead elucidates the roots of both science and logic: *experience* and *common sense thought* are their sources; but both need for exact thought to arrange mentally the otherwise vague and fragmentary actual feelings in both areas. Rational thinking is not at all autonomic and must start from and recur necessarily to the irreflexive common sense thinking and its claims as to the root of the genesis of sophisticated science; “You may polish up common sense, you may contradict in detail, you may surprise it. Yet ultimately your whole task is to satisfy it” (MT, 63). Metaphysics has to elucidate both common sense and science, it investigates the nature of every source and type of experience and tries to give a demonstrative proof of them (the problem of the possibility of a positive proof does not arise here). The starting point to reconstruct is the “imaginative perception” of experiences – admitting ideal experiences too – which is “neither wholly arbitrary, nor yet fully determined” (MT, 63). Whitehead presents in this short writing a *historical* approach to the emergence of rational concepts (he treats common sense as simply a given): he states that the evolution of human consciousness took millions of years, with the result being a special human *conceptual code* involving historical *contingency*, which formed

differently from the eventual occurrence of rationality on other planets in the universe; all rational concepts are related to this contingent code which has cristallized in accordance with existential requirements of human life. This special human thinking can produce science only in connection with the logic incorporated in it: "No logic, no science" (MT, 64). Science is essentially logical partly because the "nexus", the *relations* between the scientific concepts are logical, partly due to the logical *grounds* of a scientific system. Whitehead emphasizes that logic can not be sterile; Aristotle unfortunately confined the unending number of forms of propositions to four, making by this restriction real progress in the field of logic impossible, not to speak of the theory of the logical variable, to which he came very near but did not grasp its precise application. As Whitehead's epistemology has an empiristic and a rationalistic character at the same time, observation (induction) and (logical) deduction are for him like the "two ends of a worm", both necessary for any productive nities⁷, but finitude (the only feeling which God *can never experience*) (not on propositions like Aristotle) which make progress in thinking and logic possible.

The question of the need for logic – generally: why is the chemical analysis of seawater necessary if a sailor, too knows the saltwater when he sails over it – is answered by Whitehead by the two arguments of *lack of awareness* and *complexity* in common sense thought: 1.) you cannot know too much the methods you employ; the abstract forms of logical deductions e.g. do not ordinarily enter into thought, common sense moves by "blind instinct" from one proposition to the other, 2.) logical operations, forms and implications are not simple at all (MT, 73).

Logic is defined here not as a theory of deduction but as the guide in the study of the *formation of the main concepts of science* (e.g. what is meant by the concept of point in geometry from Euclid until now). This sense of logic would belong today rather to the tasks of the philosophy of science or history of science. But Whitehead refines his definition of logic: it is an "organising principle, analysing the derivation of the concepts from the immediate phenomena, examining of the structure of the general propositions which are the assumed laws of nature [...], deducing the phenomena we may expect under given circumstances." (MT, 76)

Whitehead considers the moral and historical/social importance of logic too, in two approaches: 1.) It does not shackle thought, he states, even provides *freedom* for it. An active logical mind needs boldness but helps making *decisions* in practice, whereas illogical thought hesitates to draw conclusions; an untrained mind in the field of constructive logic is ignorant of conclusions, is tempted and inclined to glorify *induction* and