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THE PROBLEM OF NOVELTY ACCORDING TO C.S. PEIRCE AND A.N. WHITEHEAD

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A Giuseppe

At this moment scientists and skeptics are the leading dogmatists. Advance in detail is admitted; fundamental novelty is barred. This dogmatic common sense is the death of philosophic adventure. The Universe is vast.

— Alfred North Whitehead

Let us not pretend to doubt in philosophy what we do not doubt in our hearts.

— Charles Sanders Peirce

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LIST OF ABBREVIATIONS

CHARLES SANDERS PEIRCE'S WORKS

CP	*Collected Papers of C.S. Peirce*
W	*Writings of Charles S. Peirce*
RLT	*Reasoning and the Logic of Things*
EP	*The Essential Peirce: Selected Philosophical Writings*
NEM	*The New Elements of Mathematics*

ALFRED NORTH WHITEHEAD'S WORKS

PNK	*An Enquiry concerning the Principles of Natural Knowledge*
CN	*The Concept of Nature*
PRel	*The Principle of Relativity with Applications to Physical Science*
SMW	*Science and the Modern World*
RM	*Religion in the Making*
S	*Symbolism*
AE	*The Aims of Education and Other Essays*
FR	*The Function of Reason*
PR	*Process and Reality*
AI	*Adventures of Ideas*
MT	*Modes of Thought*
SP	*Essays in Science and Philosophy*
D	*Dialogues of A.N. Whitehead*

PART I

THE PROBLEM OF NOVELTY

BETWEEN PEIRCE AND WHITEHEAD

Chapter 1

At the Margins of Philosophy: The Problem of Novelty

The present dissertation explores the problem of novelty according to Charles Sanders Peirce (1839-1914) and Alfred North Whitehead (1861-1947).

Generally speaking, the topic of novelty seems to be so vast and vague that it does not deserve an entire investigation. What does novelty mean? What are we referring to? Before answering these questions, and in order to tackle them, we need first and foremost to understand how this topic concerns us, why it represents a *problem* – that etymologically means "something thrown, put forward to us" – one that is related to our world today, and a philosophical one. Indeed, the more we will grasp the currency of the issue, its philosophical pertinence, and how it is still far from being solved, the more we will understand the relevance of Charles Sanders Peirce's and Alfred North Whitehead's reflections on the subject. Accordingly, we do not intend to start with a definition of novelty, but rather to get acquainted with the problem and shed light on those fields in which novelty emerges as a pivotal topic, continuing even today to challenge our mindset. Only after this progressive approach to novelty, the investigation will explore Peirce's and Whitehead's contributions to the issue, aiming at reaching a deeper conception of novelty.

1. The Contemporary Salience of Novelty

On the one hand, the "history of novelty" can be traced back to Plato or even earlier, as Michael North has recently done;[1] on the other hand, the issue became an explicit

[1] Cf. North 2013. In this remarkable and witty book, published in October 2013 and titled *Novelty: A History of the New*, Michael North illustrates the "history of novelty" ranging from the Bible and pre-Socratic philosophers to the art criticism of the 1970s and from Darwinian evolutionary thought to probabilistic theories.

and widespread subject of reflection only in the 20th century.[2] Furthermore, in the last decades the topic of novelty has become more and more prominent and its currency can mainly be ascribed to three extra-philosophical sources. (1) Above all, novelty is related to the field of aesthetics and art. We are not here referring to the way novelty has been specifically taken into consideration from time to time in the history of art,[3] but rather to that intrinsic characteristic of *creativity* that every artwork carries within itself. In fact, every artistic work is to some extent creative, its forcefulness consisting in bringing about something new, something that did not exist previously, unpredictable before its appearance.[4] As Deleuze has sharply noted, talking about cinema: "novelty is the sole criterion of any work of art. If you don't feel you have seen something new, or have something new to say, why write, why paint, why shoot a film?" (Deleuze 2003, 220; 2006, 217).[5] In this way, the relevance of creativity and novelty, understood as the criterion of creativity, lie at the very heart of art, and their central roles have been even more emphasized, from the 60ies onwards, by the continuous growth of the fields of advertisement and media, which enlarges the boundaries of this discipline and enrich its

[2] For a detailed analysis of the early 20th century's reflections on novelty, see also Part III, § 1. For the moment, it can be sufficient to note that is only with Bergson's and James's thoughts that the topic was broadly, philosophically discussed. Cf. also North 2013, 6, 75-83.

[3] For an analytic study on this historical tradition, cf. North 2013, 144-202.

[4] This passage is based on a peculiar definition of creativity, very close to Whitehead's one (cf. PR: 21), such that we can compare, or at least connect, *creativity* to *novelty*: on the one hand, something is creative because it "creates" something new, on the other, novelty is both the product of creativity and a distinct feature of it. But the comparison works well only to this extent, otherwise it would be misleading. Indeed, if creativity implies novelty, novelty does not necessarily entail creativity. For instance, a new event cannot result from any creative act: its unpredictability can be independent of any creative processes and may also assume a destructive power, as in the case of hurricanes or natural disasters, whereas creativity is usually associated with some positive addition with this regard, cf. also Part II, Ch. 2, § 4.2.

[5] Translation partially mine. The English translation adopted the word "originality" instead of "novelty". I chose to translate it with "novelty" because it corresponds literally to the French term "nouveauté", used in the original edition. Moreover, though novelty and originality are concepts belonging to same semantic area, their meanings are neither equivalent nor interchangeable. An *original* painter can make "original" paintings but they may not represent something new. They can seem original as well as old-fashioned. In this regard, a passage from Ernst Bloch's *The Principle of Hope* can help us in taking notice of the difference. The author states, defining the role of genius: "Mastery in the work of genius, a mastery which is foreign to what has normally become, is also comprehensible only as a phenomenon of the Novum. *Every great work of art thus still remains, except for its manifest character, impelled towards the latency of the other side, i.e. towards the contents of a future which had not yet appeared in its own time, if not towards the contents of an as yet unknown final state*. For this reason alone great works have something to say to all ages, a Novum pointing onward in fact, which the previous age had not yet noticed; only for this reason does a fairytale opera like 'The Magic Flute', but also a historically localized epic like the 'Iliad', possess so-called eternal youth" (Bloch 1995, 1: 127, emphasis added).

possibilities. Additionally, contemporary psychological and neuro-scientific researches have provided a new method and perspective to investigate creativity or – better yet – creative cognitive processes.

(2) Secondly, novelty is connected to technology and science. With regards to technology, we can say that mankind has from its very outset been marked by novelty.[6] If "man came silently into the world",[7] surely technology made noise, and pushed human being toward its fast-paced evolutionary itinerary, for any time technology reaches new achievements, it opens up new paths of development, and new ways of living, never explored until that moment. But the relationship between human existence and technology is even more essential. We do agree with Helmut Plessner when he says that "Man is by nature artificial."[8] Yet, it is not easy to realize that in saying so we must continuously face new problems and issues, starting from: "What is man?" In fact, if nowadays we look at the unceasing discoveries in terms of robotics, nanotechnologies, as well as digital technology and the new media, it is apparent that the very concept of man, if any, has to be re-thought and re-defined. So, technological improvements not only require (our) acceptance but they also demand new, broader, non-technical advancements. They make us new, and at the same time push us toward new ideas of identity, personality, otherness, community, knowledge, etc… always in development with the latest discoveries. And it is exactly due to the importance of discovery that novelty has been always associated with science, both with the history of science and with to the process of scientific research itself. As Thomas Kuhn underlined, novelty lies at the heart of every change of paradigm, of every scientific revolution.[9] Moreover,

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[6] As Carlo Sini puts it, it is impossible to draw a line between *homo sapiens* and *homo technologicus*. The human body has always been expanded toward the world, by means of tools which strengthen some abilities and weaken others. We cannot think about the human body in abstraction from its expansion toward the world thanks to external tools, because from the very outset mankind has always been expanded using some types of instruments. Cf. Sini 2009 and Longo 2005.

[7] Cf. Teilhard De Chardin's masterpiece *The Phenomenon of Man*, where he points to the birth of thought on Earth using the phrase quoted above. In particular, see De Chardin 1995/2008, 184.

[8] Plessner 1931/1982, 199.

[9] Cf. Kuhn 1962/1996, 52. The author explains: "Normal science does not aim at novelties of fact or theory and, when successful, finds none. New and unsuspected phenomena are, however, repeatedly uncovered by scientific research, and radical new theories have again and again been invented by scientists. History even suggests that the scientific enterprise has developed a uniquely powerful technique for producing surprises of this sort. If this characteristic of science is to be reconciled with what has already been said, then research under a paradigm must be a particularly effective way of inducing paradigm change. That is what fundamental novelties of fact and theory do. Produced inadvertently by a

with reference to novelty, biology has probably been the most stimulating science for philosophy in the last two centuries, especially Evolutionary Biology and Epigenetics. Overall, Darwin's evolutionary thought, from its very beginning, has been posing a challenge to philosophy because it points out that the nature we face is not of a fixed, immortal kind; rather, it uncovers a dynamic world, ever-changing and always in development.[10] Accordingly, the more physical and biological sciences improve their understanding of these changes, the more philosophy needs to answer questions like: "Can we actually speak of novelty?"; "In which way can we conceive of those changes and developments, testified to by a vast number of scientific results?"; "How is it possible for something new to appear?"

(3) Thirdly, novelty can be considered as an issue of public interest, because of the rapid changes affecting our pluralistic society and demanding new measures, policies and laws. Indeed, nowadays one can observe a political, cultural and economic instability, such that we cannot take these structures for granted anymore: both at international and national levels, at least in Western-society, these structures continuously need modifications and innovations, in order to be in step with the times. Therefore, these socio-political challenges call for novelty, even more in this period of financial turmoil and global crisis. As Maddalena and Zalamea have recently suggested: "Perhaps due to the period of international crisis, appeals to creativity multiplied in any field. Sure enough, when the status quo cannot grant welfare conditions anymore, something new is needed" (Maddalena/Zalamea 2013, 6).

As we have now briefly touched upon, the salience of novelty seems undeniable, a problem that everybody finds facing him, not confinable to philosophy. However, as soon as one begins to discover how relevant the issue of novelty is, or to connect the topic to certain phenomena, the topic itself becomes as interesting as hard to be

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game played under one set of rules, their assimilation requires the elaboration of another set. After they have become parts of science, the enterprise, at least of those specialists in whose particular field the novelties lie, is never quite the same again." Moreover, the author distinguishes between a factual novelty (namely, novelty of fact) and a theoretical novelty (novelty of theory), essentially intertwined, according to Kuhn, in every scientific discovery.

[10] In this regard, see especially Ernst Mayr's works, in particular Mayr 2004. As North also underlined, the centrality of novelty in biology does not correspond to a widespread agreement on the topic among scientists. Indeed, the explanation of evolutionary novelty is one of the most controversial topic, not only as a point of contention between developmentalists and traditional molecular biologists, but especially since its definition still remains uncertain (see North 2013, 2, 61-62).

analytically scrutinized. And the same problem can be found at the level of personal experience. As North has wittily said: "How does the quality that makes a new shirt or a new friend such a positive experience turn into something almost sinister in the abstract?" (North 2013, 1). Such facts show that the meaning of novelty is usually either taken for granted or just considered puzzling or impossible to grasp (cf. Hausman 1975, v, 1-3). For this reason, a philosophical inquiry on it is imperative, to help us clarify and understand better the issue here at stake, and therefore its relevance and implications.

2. Novelty: At the Margins of Philosophy

The limits above indicated in defining novelty are indeed not merely linguistic, rather they all lead to an essential philosophical question: can novelty really be comprehended? The very possibility for novelty to be a philosophic issue depends to some extent on the answer we give to this question, because if novelty were absolutely inaccessible to the mind it would be impossible to investigate it. At the same time, the problem I want to draw attention to here goes rather deeper than this: indeed, in its turn the question concerning the intelligibility of novelty is rooted in a basic assumption, that cannot be postulated, as the entire history of philosophy exhibits. This assumption consists in admitting the existence of novelty, or radical novelty, on the ontological level. In other words, the problem can be formulated as follows: does novelty really exist? If we consider – even hastily – our experience, it is apparent that it does exist, and the pressing and unceasing desire for novelty represents in itself evidence of the presence of novelty, and reveals how important it is for human beings in general.[11] But for ages philosophy did not admit such a possibility. Why? Let me briefly explain by analyzing novelty's peculiar connection to philosophy according to the three levels just mentioned, which are intertwined and all essential to properly think through the matter, namely: the ontological level ('Does novelty exist?'), the gnoseological one ('Is novelty comprehendible?'), and the phenomenological/experiential one ('Is novelty actually experienced?'). On the ontological level, from Parmenides[12] onwards novelty has not

[11] On this point, cf. also North 2013, 2. The author states: "Desire for the new, however, seems to be a fairly durable human quality, and interest in it persists even now, after its role in the worlds of art and fashion has been exposed and debunked."

[12] Cf. North 2013, 34 and Mourelatos 1981.

been explicitly taken into account because of the acceptance, assumed by Occidental philosophy, that nothing comes from nothing (*ex nihilo nihil fit*).[13] For being is and nothing is not. Implicit in this is an idea of being as unchanging and undifferentiated. Indeed, given this general framework within which traditional metaphysics arose, no question about novelty could have been posed; there was at most room for change, conceived as a mere superficial metamorphosis of antecedent state of things, therefore not involving any modification of the static structure of being.[14]

From a gnoseological point of view, the matter is more subtle: on the one hand it pertains to novelty's paradoxical structure,[15] on the other it revolves around the way *understanding* and *knowledge*, and therefore *philosophy*, are conceived. Once the possibility of novelty has been admitted on the ontological level,[16] it is not easy to sustain both its understandability and its irreducible structure, which is paradoxical because for something to be new means on the one hand to have an irreducible side – irreducible to previous elements or previous knowledge –, such that one can properly recognize it as new, and on the other to show some aspects that, on the contrary, are comparable with old or ordinary objects and experiences. From another perspective, if novelty were absolutely incomprehensible, one would not even be able to indicate or speak of it, because without any comparison with the old, the common, and the absolutely expected, would be impossible also to identify novelty. In this way, the paradoxical structure of novelty can be comprehended as a peculiar twist of continuity and discontinuity, relative and absolute. Moreover, to this extent we can also detect the problem of novelty as inextricably linked to that of knowledge, as it has been presented from the outset of philosophy. Let us consider, for instance, the paradoxes of Plato's *Meno*: 'How can I know something that I didn't know before?' Similarly, 'How can I know something new?' As we can see here, the problem of novelty can be apprehended as *the* problem of knowledge.

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[13] Apart from Christian philosophy, that was rooted is the concept of *creatio ex nihilo*, established as a dogma in 1215 but already thought by Augustine. See North 2013, 36.

[14] It is worthwhile to note that the lack of any direct discussion of the topic of novelty does not imply the impossibility to trace back the topic to the beginning of philosophy, or yet to analyze it in the classical philosophers. Nevertheless, as I shall show in the next paragraph (3), novelty was not considered a philosophical issue until the dawn of the 20th century.

[15] Hausman 1975, 53-59.

[16] Cf. the following paragraph.

However, apart from these paradoxes lying at the very heart of both knowledge and novelty, their connection has often been neglected in the history of philosophy, at least until the 20th century, and especially if we limit our consideration to the case where novelty is conceived of as an object of understanding and knowledge. Why? As Hausman suggested in regards to creativity,[17] this is probably due to a certain conception of knowledge (and reason), commonly shared by traditional metaphysics and grounded in a rationalistic perspective. Indeed, referring to traditional Western philosophy, especially in the Modern Age, novelty as such can not be an object of knowledge, because every object of knowledge must be subjected to the rules of reason. Otherwise, reason would reduce novelty according to its own schemes, reduce it to its previous patterns, according for instance to a determined logic of cause-effect that would vanish novelty away. Thus, nothing that lies outside of reason's boundaries can be admitted as an object of knowledge, nor even recognized as a possible one: only what fits in reason's network deserves to be a matter of understanding. As Nietzsche pointed out, "rational bias forces us to postulate unity, identity, permanence, substance, cause, materiality and being."[18] Accordingly, if to understand means to explain by rationalistic patterns and categories, novelty cannot be understood at all since it breaks and escapes them by definition. On the whole, everything that exceeds such fixed categories is to be condemned to mere appearance; thereby novelty, along with difference, change, accidents, becoming, etc. are repudiated and confined to the margins of philosophy.[19] But the fact that those concepts and phenomena are not taken into consideration is not restricted to a specific period in the history of philosophy. Rather, it reveals that the concept of novelty, as well as of those of change and becoming, etc. as such undermine metaphysics. It is exactly their characteristic of marginality what leads us beyond metaphysics, the latter conceived as traditional ontology. Indeed, we can

[17] Cf. Hausman 1975: 2-17. Hausman's analysis throws light on the difficulties of understanding creativity and novelty, and accordingly of a philosophical inquiry on it. However, the argument here provided differs from his insofar as (i) it focuses on novelty (and not creativity), (ii) the rationalistic approach is overall associated with the traditional metaphysics, (iii) rationalism is not investigated in alternative to a non-rationalistic approach, but it is rather pinpointed as the main reason for novelty's marginality in traditional philosophy.

[18] Cf. Nietzsche's *Twilight of Idols*, Ch. II, § 5. Nietzsche 1889/2007, 19.

[19] As we will see in the next paragraph, this expression intentionally recalls Derrida's one, because he was one of the prominent philosophers of the 20th Century who focused on this field of inquiry. Cf. Derrida 1972/1986.

identify *marginality* as the distinctive *status* of this range of phenomena, since their very essence consists in continuously challenging reason, pushing it beyond its own limits and driving towards a new, broader comprehension of reason and knowledge themselves. In this sense, to answer the question posed at the beginning of this paragraph ('Can novelty be comprehended?'), novelty is comprehensible, on the condition that a new definition of knowledge and reason is assumed, far from any rationalistic (as well as irrationalistic)[20] approach. But how to gain such a position? If it is unattainable to start from any determined conception of reason, the most feasible path to a different perspective is rooted in the field of experience, as the 20th Century has shown.

As I mentioned above, the *experience* of novelty seems to be the safest ground whereby a philosophical investigation on novelty can start, first by singling out those experiences we refer to as new, second by analyzing them and the meaning they carry within themselves. This solution may be trivial and too simple at first glance, but it reveals its philosophical originality, soundness and fruitfulness if compared to the mainstream of traditional philosophy. Generally speaking, from Plato onwards classical metaphysics has usually submitted experience to logic and reasoning, because experience was not conceived as a reliable field of inquiry. On the contrary, in its broader sense a phenomenological investigation, that is an investigation which explores and interrogates experience, confers a new meaning and value to experience, making room also for those phenomena that do not correspond to the most traditional philosophical categories, and giving relevance to concepts such as becoming, difference, change and novelty, which are usually conceived as merely apparent, contingent or derivative ones.

So far, by roughly analyzing the three main perspectives in which the problem of novelty can be addressed (ontological/gnoseological/phenomenological), we seized the opportunity to go over the history of philosophy, touching briefly upon some of its most important tendencies and phases, which go from Parmenides to the dawn of the 20th

[20] Indeed, to maintain the existence or possibility of novelty does not entail to assume an irrationalistic perspective. On the contrary, an irrationalistic perspective would eliminate the problem of novelty as much as rationalism does, because instead of encompassing the rules of reason, it denies its power of knowing and understanding. Consequently, the paradoxical structure of novelty is overlooked or flattened to simple elements, that in any case cannot be fathomed by reason. Cf. also Hausman 1975, 3, 6-7.

century. As I have already indicated, the 20th century can be regarded as the century in which, along with the pivotal role accorded to experience, the problem of novelty arose, such that it became one of the topics most pondered in philosophy. But in what sense?

3. Novelty: The 20th Century's Renaissance[21]

As Stephen Shaviro has pointed out,

> The concepts [of creativity, novelty, innovation and the new] (or at least these words) are so familiar to us today […] that it is difficult to grasp how radical a rupture they mark in the history of Western thought. In fact, the valorization of change and novelty, which we so take for granted today, is itself a novelty of relatively recent origin. Philosophy from Plato to Heidegger is largely oriented toward *anamnesis* (reminiscence) and *aletheia* (unforgetting), toward origins and foundations, toward the past rather than the future (Shaviro 2009, 70).[22]

Accordingly, first and foremost it is worthwhile to note that nowadays we are all acquainted with this range of concepts. Second, and even before trying to understand *why* it happened in the recent history of philosophy,[23] it is relevant to bring to light *how* this renaissance of novelty, if any, took place, and so to illustrate how relevant the topic has been in the 20th century, by referring to all those philosophers who tackled it, albeit from different perspectives or in connection to divergent problems.

Indeed, in the 20th century the mainstream manifestation of novelty can mainly be traced out under the label of "event". The notion of the *event* is comparable to that of novelty, insofar as event commonly expresses, as Žižek has recently suggested, "the effect that seems to exceed its causes – and the space of an event is that which opens up

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[21] I do not here intend to develop a historical reconstruction of the problem of novelty, either by comparing the last century's philosophy with the previous centuries' tendencies, or by limiting my consideration to the 20th century. Rather, the purpose of the paragraph is simply to take notice of the great attention given to topics connected to novelty.

[22] It is worthwhile to note that this interpretation of Heidegger's work does not correspond to the one provided here. In fact, it does not take into account the second part of Heidegger's thought.

[23] This aim goes indeed beyond the purpose of the present investigation. For a critical account of it, see in particular North 2013 and Baumer 1977, who sketches out a history of ideas from 1600 to 1950, paying special attention to the changes that happened in the 19th century, especially relative to how "becoming" overcame "being".

by the gap that separates an effect from its causes" (Žižek 2014, 2). Therefore, an event can be called the happening of novelty to the extent that it irrupts and breaks the previous connections and patterns, and so cannot be understood by them, inaugurating a new horizon.

The philosophy of the event, however, does not designate a unique school of thought, since this notion contaminates the most important philosophies of the 20th century: from Bergson's thought to phenomenology and deconstruction, up to the present. For exposition's sake, and in order to mention all of them, we can divide the thinkers committed to the *event* and *novelty* into four different phases, chronologically ordered.

i. In point of fact, the forerunners of this kind of philosophy, the first ones who gave room to a concept like the event, actually lived between 19th and 20th centuries and opened up new consistent philosophical perspectives, in opposition to classical metaphysics. They include first and foremost Friedrich Wilhelm Nietzsche, who explicitly proposed the concept of the *event* against the category of *substance*;[24] the founders of Pragmatism: Charles Sanders Peirce and William James, who differently stressed upon the role of the event and the importance of novelty and radical creativity;[25] Henri Bergson, whose concepts, from *élan vital* to *creative evolution*, reshaped the way philosophy tackles classical issues (e.g., the mind-body problem).

ii. Secondly, during the first decades of the 20th century, novelty became one of the most common topics of discussion among Anglo-American philosophers:[26] in particular, let us consider the pragmatic account of Ferdinand C.S. Schiller, Alfred North Whitehead's metaphysics of creativity,

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[24] For instance, cf. the following quote from a posthumous fragment of 1885: "We have regarded changes in ourselves not as such but as an 'in-itself' that is alien to us, that we only 'perceive:' and we have posited them not as something that happens but as something that is, as a 'quality' – and invented for them a being in which they inhere, i.e., we have posited *the effect as something that effects and what effects as something that is*. […] – But this inference itself is mythology: it *divorces* what effects *from* the effecting. If I say: 'Lightning flashes,' I have posited the flashing once as activity and once as subject, and have thus added on to what happens [Geschehen] a being that is not identical with what happens but that remains, is, and does not 'become'. – *To posit what happens as effecting*, and *effect as being*: that is the *twofold* error, or *interpretation*, of which we are guilty. Thus, e.g., 'The lighting flashes' – 'to flash' is a state of ourselves; but we do not take it to be an effect on us. Instead we say: 'Something flashing' as an 'in-itself' and then look for an author for it – the 'lightning'" (Nietzsche 1885/2003, 75-76).

[25] We will consider more carefully their positions in Part II and Part III of the present dissertation.

[26] For a more detailed exposition about these years and authors, see Part II.

and also British Emergentism's definitions of emergence, connected to evolution (Lloyd Morgan, Samuel Alexander, Charlie Dunbar Broad).

iii. Later on, many authors came to the concept of the event, adopting it as a key one in their philosophies, while they remain absolutely divergent from one another, or even opposed. From Martin Heidegger, whose late thought pivots around the concept of *Ereignis* ("*event*") [27] to Jacques Derrida's deconstructionist figures of event,[28] from Gilles Deleuze's philosophy of the event[29] to Lacan's discourse on it.[30] Besides these, other thinkers also gave importance to novelty, choosing other sets of terms: for instance, let us think of Hannah Arendt's concept of *natality* [31] or to Emmanuel Levinas's *otherness*,[32] both qualified by the idea of something irreducibly new.

iv. More recently, in the past twenty years the concept of the event has spread out, and many developed their own thoughts that gave new relevance and meaning to the concept of the event. See for instance Alain Badiou,[33] but also, in a phenomenological perspective, the works of Jan Luc Marion,[34] Claude Romano[35] and Françoise Dastur.[36] Moreover, also Slavoj Žižek has recently published a book dedicated to the analysis of the event.[37]

In accordance with the list presented above, we really can point to a renaissance of novelty (and the event) in the 20th century, a renaissance that to some extent still goes on today. Therefore, after explaining the philosophical marginality of the topic, but also its centrality in the 20th century, and its increasing importance in the latest

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[27] Cf. the collection of writings on the topic, translated into English in *The Event*, Heidegger 2009/2013.

[28] Cf. Di Martino 2009.

[29] Among others, cf. Deleuze 1969/1990 and Zourabichvili 2012.

[30] Parker and Pavón-Cuéllar 2014.

[31] Cf. Arendt 1958 and Bowen-Moore 1989.

[32] Cf. Levinas 1948/1987.

[33] Cf. Badiou 1988/2005.

[34] Cf. Marion 2005.

[35] Cf. Romano 1998/2009, 1999/2013.

[36] Cf. Dastur 1997.

[37] Cf. Žižek 2014.

philosophical movements, why compare in particular Charles Sanders Peirce's thought to Alfred North Whitehead's one?

Chapter 2

Why Peirce and Whitehead?

The decision to compare Peirce and Whitehead on novelty is due to a fundamental theoretical reason, lying in their interesting and innovative approaches, which provide an all-round view of the topic of novelty. If the entire investigation will focus on analyzing, explaining and comparing their close but different standpoints on the issue, for the moment it is useful to introduce Peirce and Whitehead, and their respective philosophies, from a historical as well as general theoretical perspective. At the same time, I will here introduce and refer to all the documents and the secondary sources provided so far on these two authors (together considered).

1. Historical Overview: Intersections and Missed Connections

1.1. Peirce's Acquaintance with Whitehead

Charles Sanders Peirce was born in 1839 in Cambridge (Massachusetts), more than twenty years before Whitehead (1861),[1] and died in Milford (Pennsylvania) in 1914, ten years before Whitehead began his philosophical career in America, accepting the invitation to teach philosophy at Harvard (1924). It would seem then that Peirce did not have any occasion at all to meet Whitehead or read any of his works. On the contrary, Peirce heard of Whitehead and perhaps read some texts by him, not those on philosophy, but rather the mathematical and logical ones. For instance, and to some extent in continuity with his later thought, Whitehead published in 1898 *A Treatise of Universal Algebra. With Applications* and we can find this title written in one of

[1] For full biographical accounts see Brent's brilliant biography on Peirce (Brent 1998), and Lowe's two volumes on Whitehead's life and work (Lowe 1985 and Lowe 1990).

Peirce's manuscripts, annotated in "the list of Books most needed" (MS 1574).[2] However, on the 17th of November 1900 Peirce wrote in a letter to Ladd-Franklin that he "never saw Whitehead's book" because when it came out he "could not read it and [has] not read it." Accordingly, if we cannot dare to say that Peirce read it, he was surely interested in it. Indeed, he was acquainted with Whitehead as one of the major figures in mathematics and symbolic logic at that time; for not only *A Treatise of Universal Algebra* was a work of Peirce's interest, but more broadly all Whitehead's works on mathematics between 1898 and the publication of *Principia Mathematica* (1910-1913), in collaboration with Bertrand Russell.

In fact, because of Whitehead's prominence in this field, he is sometimes mentioned in Peirce's writings, especially in *The New Elements of Mathematics*,[3] but that does not entail that Peirce had a high esteem of Whitehead's mathematical ideas. Quite the opposite, Peirce was dissatisfied with Whitehead's ideas and general direction of thought, usually considered by Peirce to be the same as Russell's thought. For instance, in 1902 Peirce gave a harsh reply to Frank Morely – the editor of American Journal of Mathematics –, who sent him a copy of the journal including Whitehead's "On Cardinal Number." He wrote: "Whitehead's saying that any mathematical proposition is incapable of clear expression in ordinary language, aided by a technical terminology, and algebraic devices, is to my mind, down right silly."[4] Again, in 1903 Peirce wrote, with reference to cardinal and ordinal numbers, that "Quite recently Mr. Whitehead and the Hon. Bertrand Russell have treated of the subject; but they seem merely to have put truths already known into a uselessly technical and pedantic form" (NEM3: 347; MS 459, 1903). In addition, three years later Peirce strongly stated that "Russell and Whitehead are blunderers continually confusing different questions" (NEM3: 785; L

[2] Here and onward, see also Nubiola's clear-cut analyses of the historical connections between Peirce and Whitehead, where he reports on many of the sources I refer to here (Nubiola 2008, 482-485).

[3] Whitehead is also mentioned in the following manuscripts: MS 459, 684, 818, 1574. Moreover, his name occurred three times in the *Collected Papers*. Two of them are footnotes added by the editors, one regarding Whitehead as one who conceived mathematics as a branch of logic, and the other concerning the similarity of Peirce's analyses with some results contained in *Principia Mathematica*. Cf. CP: 2.81 fn. 3; CP: 3.42, fn. 1. The only direct reference is in CP: 8.168, where Peirce refers to Whitehead as one who, among other and along with Cantor, "made logic of quantity irrefragable."

[4] Cited in Nubiola 2008, 483.

148, 8 May 1906).[5] Nonetheless, in that period of time Peirce was more focused on his own work than on the others' results. For instance, as Nubiola reported, between 1905 and 1907 Peirce worked on a paper entitled "Considerations Concerning the Doctrine of Multitude" and on that occasion he emphasized that:

> By the time Whitehead's and other works had appeared, I was so engaged in the struggle with my own conceptions that I have preferred to postpone reading those works until my own ideas were in a more satisfactory condition, so that I do not know in how much of what I have to say I may have been anticipated (NEM3: 1069).

As we have read, Peirce openly admitted that he was not well informed about other research in the field, and this was probably the reason why he did not realize how some of Whitehead's attempts were close to his own view of mathematics and symbolic logic. In any case, they both independently reach in some respects the same conclusions, so that by comparing Peirce's papers with Whitehead and Russell's masterpiece, *Principia Mathematica*, the latter reveals indeed a debt toward Peirce.[6]

Moreover, as Rodriguez has recently suggested, Peirce's and Whitehead's philosophical understandings of mathematics were really alike,[7] not merely considering Whitehead's work with Russell, but especially Whitehead's philosophic books.[8]

Apart from this mathematical acquaintance, Peirce never met Whitehead, did not read much of his work and did not show a great esteem toward him. Nevertheless, we can certainly say that Peirce considered him among the most prominent philosophical figures at that time, as a very late manuscript dated 26-31 August 1913, MS 684,

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[5] To note that Peirce is here referring to Russell's *The Principles of Mathematics*, written in 1902 (and not to *Principia Mathematica*). However, he addressed on purpose both Whitehead and Russell, because he believed that even the books that Russell published as a single author, were influenced and based on Whitehead's thought.

[6] Cf. Nubiola 2008, 483; Eisele in NEM4: 12, where she said that many ideas founded in *Principia Mathematica* are anticipated in Peirce's paper "Upon the Logic of Mathematics" (1867), and Lewis 1918, 85 and Wennerberg 1962, 21. Also, about Whitehead's and Russels's debts to Peirce in logic, consider Putnam 1990, 258; Houser 1997, 5 and Misak 2004, 25.

[7] Cf. Rodriguez 2011, in particular 152-161.

[8] To be noticed that Whitehead's philosophic opus is indeed significantly far from Russell's philosophical perspective.

entitled *A Study of Reasoning in its Security and its Uberty* attests to.[9] Indeed, Peirce originally planned to send this paper to Royce, Dewey, Whitehead and Bradley, probably thinking, in accordance with his impulsive and irreverent character, that their ways of reasoning were somehow lacking of security and uberty.

1.2. Whitehead's Acquaintance with Peirce

Alfred North Whitehead's acquaintance with Peirce is not confined to Whitehead's mathematical period, if we follow the common division of Whitehead's thought into three distinct periods: first, the mathematical and logical period (1891-1913), second, the period focusing on the philosophy of physics (1914-1923), and third, the metaphysical period (1924-1947).[10] Nonetheless, in his writings he explicitly referred only to Peirce's mathematical works and apart from them Whitehead probably did not read some of Peirce's philosophical essays in their entirety. Overall, the reason for this particular circumstance, besides the fact that Whitehead properly started his philosophical career at the age of sixty-three, lies apparently in Peirce's troubled life and academic misfortune.[11] As we have just seen, Peirce added *A Treatise on Universal Algebra* to the list of books most needed, and this is indeed the text in which Whitehead quotes Peirce the most, referring six times to him, and to his papers published on

[9] This manuscript has not to be confused with MS 682, *An Essay Toward Improving Our Reasoning in Security and in Uberty*, now published in EP2: 463-474. Probably, MS 684 is a previous draft of MS 682, composed in September-October 1913, or – to be more precise – they both belong to the same series of drafts on the assurance provided by the different kinds of reasoning.

[10] The tripartition, nowadays common among Whitehead's scholars, is more a commonplace, rather than a sharp, effective, distinction of different periods. Rudolf Metz articulated it for the first time in his *A Hundred Years of British Philosophy* (Metz 1938, 591-93) and then it is also used by Lowe (cf. Lowe 1951, 17), although with some remarks. For instance, he specifies that: "The grouping of Whitehead's works into the three periods […] has long since become commonplace. And for good reason: it is immediately suggested by the stated objectives of his book. (The dates I assign to these periods are uncertain, since the years meant are not publication dates, but the years in which he probably began a new type of investigation.) […] One strong impression I got as I talked with Whitehead was that he never paid any special attention to being consistent with his former self. Critics, he once said, assume that when a man sits down to write a book he has all his previous books spread out before him; for his part, he had merely tried to handle to the best of his ability the topic before him at that time. All his prefaces bear out this remark" (Lowe 1962: 121). Accordingly, this division into periods is completely extraneous to Whitehead's intentions. Moreover, Lowe stresses the profound unity of every text of Whitehead's work: "The reader who has had the courage to travel our road to the end will see, I hope, that the only possible answer to the question, 'Mathematician or Philosopher?' is 'At all times, both'" (Lowe 1962, 291).

[11] In this regard, see in particular Brent 1998, 136-202.

mathematical and logical symbolization.[12] In this regard, Murphey states that "Peirce was one of that group of men … who revolutionized logic and prepared the way for Whitehead and Russell's *Principia Mathematica*" (Murphey 1967, 71). For the rest, as Lowe clearly states, "in Whitehead's texts there is no evidence that before he wrote his philosophy of organism he was familiar with any of Peirce's work outside logic" (Lowe 1962, 266).

Despite this limited familiarity, Whitehead always expressed a high esteem for Peirce, as is proved by the fact that he referred to Peirce as the "American Aristotle." As he wrote in a letter in 1936: "My belief is that the effective founders of the American Renaissance are Charles Peirce and William James. Of these men, W.J. is the analogue to Plato, and C.P. to Aristotle, though the time-order does not correspond, and the analogy must not be pressed too far."[13] Again, in a letter to Young in 1945, Whitehead does not merely refer to Peirce's abilities in logic; indeed, he states that "Peirce was a very great man, with a variety of interests in each of which he made original contributions. The essence of his thought was originality in every subject that he taught. For this reason, none of the conventional labels apply to him. He conceived every topic in his own original way" (Young 1952, 276). Moreover, Whitehead's life has been curiously intertwined with Peirce's work, even after the latter's death. In 1924, when Whitehead joined Harvard's Department of Philosophy,[14] Charles Hartshorne and Paul Weiss were indeed working on Charles Sanders Peirce's manuscripts.

In 1914, after Peirce's death, the manuscripts had been given, together with Peirce's personal library, to Harvard's Philosophy Department by Peirce's widow. Victor Lenzen, a Harvard's graduate student in philosophy, was delegated to go to Milford and pick them up. After his mission to Milford,[15] Lenzen also arranged them. Then, under the enthusiastic supervision of Royce, between 1915 and 1916 W. Fergus Kernan,

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[12] See UA: 3, 10, 37, 42, 115-116. Whitehead refers in a footnote to Peirce's analysis, indicated as "more obscure" (UA: 3), then he mentions his works about symbol and symbolic logic (UA: 37, 42), and finally he highlights the central role Peirce played in symbolic logic, going so far as to say that Peirce's investigations are "the most important contribution to the subject of Symbolic Logic since Boole's work" (UA: 115).

[13] Letter to C. Hartshorne, January the 2nd, 1936. Reported in Lowe 1990, 345.

[14] Interestingly enough, Whitehead was also invited to Harvard after "Bergson, Russell and John Dewey were sounded out" (Lowe 1990, 132). Particularly, as we will see in detail in the third part of the present dissertation, Bergson's opinion of Whitehead was significantly positive.

[15] Cf. Lenzen 1965, where he tells about his encounter with Juliette and how his mission occurred.

another graduate student, started sorting and arranging Peirce's papers, trying to cope with that "inconceivable textual confusion that prevailed in those piles of yellowed and dog-eared pages that had reposed so long undisturbed" (Kernan 1965, 93).[16] They provided for the first, preliminary catalogue (later continued by Lenzen), but the project to edit them failed due to the scattered status of manuscripts. Moreover, after the sudden death of Royce in September 1916, the enthusiasm in the department vanished. Kernan divided the manuscripts into eighty-three boxes, with labels, but a year later, when the U.S. entered the war, he joined the Army, and his work was interrupted for almost ten years.[17] Indeed, only in 1925 the department asked Charles Hartshorne to catalogue them and to prepare their edition. In the meanwhile, he was doing some teaching and was assisting Whitehead with grading papers (cf. Lieb 1970, 153). Both Charles Hartshorne and Paul Weiss,[18] one of Whitehead's graduate students trained in logic, who from 1927 onward volunteered to help Hartshorne, told that almost no one from the department,[19] neither students nor professors, helped, corrected or supervised their works. On their own they arranged the edition in three years (1925-28) while they were

[16] For his recollection of that period, see Kernan 1965.

[17] As Houser said, this period was very "shadowy." As he reported, "not much about this ten year period has turned up so far. […] It is known that just after Royce's death Woods asked Bertrand Russell to edit two or three volumes of Peirce's writings, and promised to arrange for Henry Sheffer to devote most of his time to the details. Russell might have agreed to this arrangement but was unable to obtain a visa to return to the United States. And at least an overture, perhaps unofficial, was made to George Santayana, but he declined and suggested that the task be given to some young philosopher or mathematician. C.I. Lewis was brought to Harvard to work on the Papers (he said he lived with them for two years) but he decided that he could spend his time more profitably teaching and writing; and at some point during this period Morris Cohen examined the collection but declined to take on the responsibility for a full-scale edition. Cohen did publish, in 1923, *Chance, Love, and Logic*, the first posthumous edition of Peirce's writings. On the darker side, there are unsubstantiated rumors that original manuscripts were carried away to be studied, and worse, that now and then manuscripts were pocketed. Stacks of pages that were thought to be worthless were donated to a wartime paper drive, and there is a persistent rumor that some of Peirce's intimate letters were deliberately destroyed. It is known that some letters were removed from the Peirce Collection and placed in the William James Collection. And it is thought that a large number of the volumes from Peirce's library were given away, many to a university in Japan which had lost its library in a great fire, but some to other libraries. […] Of the more than twelve hundred books, possibly many more, from Peirce's library that Harvard received, fewer than twenty five are included in the Peirce Collection in the Houghton Library" (Houser 1992, 1260-1261).

[18] Cf. Bernstein's interview to Paul Weiss about his recollections of editing the Peirce papers.

[19] This is how things went according to them (see Lieb 1970 and Bernstein/Weiss 1970). Additionally, they mention that only before publishing different members of the university read the volumes, but Whitehead was not one of them. On the contrary, in the first volume of *The Collected Papers of Charles Sanders Peirce*, maybe for the sake of opportunity, Hartshorne puts it: 'Nearly all the members of the Department during the last fifteen years, as well as many others who were interested in Peirce, have devoted much time to the often very intractable material of the manuscripts'. Perhaps Henry S. Leonard deserves special mention for his contributions" (CP: 1.iv).

at Harvard, with the exception of some volumes edited in the following years. Later, Harvard University Press published the (first) six volumes of *Collected Papers of Charles Sanders Peirce* between 1931 and 1935, when they were no longer at Harvard.

Thus, during those three years at Harvard – from the moment Hartshorne was led by Clarence Irving Lewis to the room in Widener Library where all Peirce's manuscripts lied in piles to the moment both Hartshorne and Weiss left Harvard – the department, Whitehead included, never paid that much attention to the criteria they followed to collect the papers, nor to the general editing. And again, the reason is probably to be found in the scant regard academia had for Peirce at that time. As Paul Weiss puts it:

> Whitehead suggested to me a number of times that I was spending too much time on the papers. The Harvard department's attitude was typical of the attitude of a good number of people. When I moved to Bryn Mawr my older colleagues there also told me that I was wasting my time. After all, Peirce was an obscure, perhaps eccentric figure, who was known to have made some interesting contributions to logic but was not thought to be worth much serious consideration (Bernstein/Weiss 1970, 171).

Although the common opinion concerning Peirce was undoubtedly negative, in those days the Harvard's context was very peculiar. Whitehead had just arrived in Cambridge and his teaching assistant, together with another graduate student of his, were collecting the papers of Peirce, a man whom Whitehead greatly esteemed as a logician. That being the case, it is not difficult to imagine that sometimes it happened that Hartshorne and Weiss discussed what they were reading with Whitehead. But to what extent? As they both noted, the occasions of discussing Peirce's writings with Whitehead were actually very few. This is because, on the one hand, Whitehead, like everybody in the department at that time, considered Peirce as a great logician, that is only insofar as he published 30-40 years before some valuable logical and mathematical works; on the other hand because Whitehead was very busy in developing his own ideas and philosophical theories. All things considered, these few episodes they recalled are

significant, and represent some precious hints toward an appropriate response to those who put into question the worthwhileness of a comparison of Whitehead and Peirce.[20] The first episode is quite funny and reveals Whitehead's surprised reaction upon reading a paper written by Peirce. Paul Weiss narrated it responding to Bernstein's question: "Did Whitehead take any interest in [Peirce's] unpublished papers?" (Bernstein/Weiss 1970, 173):

> No, with one exception. I remember that Hartshorne once read a paper by Peirce which he thought showed a very close similarity to Whitehead's view. He brought it over to Whitehead. Whitehead was not at his desk at the time. Hartshorne left the paper on Whitehead's desk without indication of where it came from. When Hartshorne returned to ask Whitehead what he thought of it, Whitehead said that he thought it was a student's paper, and that he must have a genius for a student. That is the only knowledge, so far as I know, that Whitehead had of Peirce (Bernstein/Weiss 1970, 173).

For his part, Charles Hartshorne recalls another remarkable episode, which gives us to understand that Whitehead most likely had more than one occasion to read Peirce's papers and comment them. He says:

> Whitehead came up once at my request and I showed him an essay which had some rather abstruse things to say about geometry. I knew that Whitehead was a geometrician. Whitehead read it and said that it was interesting, but that some of it was too technical and, he thought, ought to be cut. So we did omit some passages. Whitehead read several pages in which Peirce sounded rather like Whitehead talking for instance about the 'irrevocable past' and the 'indeterminate future,' and Whitehead said to me, 'I hope you will testify that this is the first time I have seen this'. When I told him that I could find some of his characteristic ideas in Peirce he said, 'Then I say he's a great man. I'm bound to' (Lieb 1970, 153).

We can see here how Whitehead made some suggestions regarding the editing of Peirce's writings on geometry,[21] and we also find that Whitehead himself acknowledges

[20] Lowe too was to some extent reluctant to compare them, attributing the main affinities to a superficial knowledge of both the authors. Cf. Lowe 1964.

an affinity with Peirce's thought. So, apart from conjecturing how many Peirce's papers Whitehead read, this should be regarded as the main salient point we can draw from this brief episode: Whitehead found in Peirce's texts not just logical and mathematical convictions, common to both, but rather he discovered some philosophical and metaphysical resemblances so striking that he went so far as to say "I hope you will testify that this is the first time I have seen this." Therefore, it sounds reasonable to affirm that Whitehead was not only very "generous in his attribution" of words of praise to other philosophers;[22] indeed he was in keeping with Peirce, or at least with some tenets of his philosophy.[23] Thus, I will now pinpoint the main resemblances and differences of their philosophies.

2. Theoretical Overview: Resemblances (and Divergences)

Many are the attempts to see Peirce as a process philosopher or to include Whitehead among the pragmatists. In both cases, those philosophical interpretations are valid and represent a useful perspective to better understand some aspects of their vast and multifaceted thoughts. Among others, consider for instance Debrock's interpretation of

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[21] Note that Hartshorne was not trained in geometry, nor in logic and mathematics. In that case, it is not hard to believe that he showed more than one manuscript on those topics, especially before the arrival of Weiss, who was more competent in logic.

[22] As Weiss stated, stressing the fact that Whitehead was not accurate in his attribution, and often attributed more relevance to authors than they actually had, or at least had for his thought (Weiss 1980, 54). Also Lowe has a similar opinion. Cf. for instance Lowe 1962, 266-67: "The significance of contemporary American philosophy for Whitehead's thought during his productive years here is difficult to estimate from his conversations, because he loved to savor, and express his appreciation of, the many and varied intellectual adventures of his contemporaries; also he loved people, and his manners were supremely good. As a result, visitors often left his company with the feeling that their philosophical problems were what Professor Whitehead was most concerned with."

[23] In addition, we can even guess that Whitehead's thought, albeit indirectly, had influence on Hartshorne's edition of volume VI of the *Collected Papers*. Particularly, this seems to be a valuable hypothesis if you consider on the one hand that the edition of this volume has been harshly criticized for the darkness of some passages and the way the texts had been arranged, and on the other that Hartshorne's interests and philosophical attitude were really close to Whitehead's own. As Paul Weiss reported, Hartshorne edited that volume, "Scientific Metaphysics" on his own, which Weiss found to be quite obscure. Cf. Weiss 1970, 173; "First of all Whitehead was at that time in his *Process and Reality* phase. This, of course, would not influence the publication of Volume III, the published papers in logic and mathematics. The publication of Volume II with its interweaving of material on deduction, induction, abduction, had its own rationale. Volume IV dealt with unpublished papers in mathematics and logic, under the guidance of Volume III. Whitehead could not have influenced the editing of Volume V, for this is built around the lectures on pragmatism and Common-sensism, and the related topics. He could have influenced the editing of Volume VI, but there you have to consult Hartshorne. I found the material for Volume VI rather obscure and difficult. At that time I had little sympathy with it."

pragmatism, maintaining that "from its inception, pragmatism was implicitly a philosophy of process, even though the concept of 'process,' and its relationship to events, was not systematically explored by the pragmatists" (Debrock 2003, 4);[24] or Soelch's view of Whitehead's philosophy as being able to "link classical pragmatism with its contemporary, more analytic versions […] by reference to the respective methodologies and theories of truth" (Soelch 2011, 87). Nevertheless, this is not the aim of the present investigation. Indeed, the risk inherent to this kind of inquiry consists first in standardizing their philosophies, loosely subsuming them under general fixed labels (either "process philosophy" or "pragmatism") and second to assimilate or reduce their thoughts to one another. On the contrary, I shall compare their philosophies with respect to their affinities, while maintaining their mutual independence. To reach this goal, I will compare in this chapter their general philosophies, with the help of the secondary literature written so far on the topic. Later on, I will analyze first Peirce's view of novelty, and then Whitehead's. At a later stage, I will finally compare their conceptions of novelty.

2.1. "Classic American Philosophy"

On the whole, and overcoming the distinction between process philosophy and pragmatism, the best way to identify Whitehead's and Peirce's most general, common features is to follow Max Fisch's outline of American "Classic Philosophy". In *Classic American Philosophers* Fisch introduces Peirce, James, Royce, Santayana, Dewey and Whitehead[25] as representative of the period between the end of the Civil War and the eve of the Second World War. Fisch calls it the 'classic period' "in the sense that the leading philosophic tendencies of the culture in which it arises reach within it a fullness

[24] Indeed, Peirce has been often associated with process philosophy, as testified by Douglas Browning's introduction to and anthology of *Philosophers of Process* (1965). In this regard, the way Debrock explains how pragmatism is a kind of processual thought is particularly original and worthwhile, because of the extremely synthetic overview he gives of both process philosophy and pragmatism. Roughly, he pinpoints three basic principles: "Consider the set of the following propositions: (1) Nothing is unless something happens. (The principle of event), (2) Nothing happens unless it involves interaction. (The principle of interaction), (3) Nothing happens in isolation. (The principle of process). I will stipulate that whoever subscribes to this set of propositions may be considered to subscribe to some form of process pragmatism" (Debrock 2003, 1).

[25] Of course Whitehead is English, but American by adoption, since he began to teach Philosophy at Harvard, MASS. More recently, Houser has taken Fisch's classification to clarify what "classical pragmatism" is. Cf. Houser 2010.

of expression, a mutual definition, a synthesis or equilibrium, and a permanent embodiment in texts which rapidly acquire the status of a canon and which determine the directions in which further reflection moves for generations or centuries thereafter" (Fisch 1951, 1). Therefore, despite their differences and peculiarities,[26] it is possible to characterize classic American philosophers according to fourteen major tendencies, which go through all their philosophies. According to Fisch, we can roughly indicate them as follows:

1) The damnation of Descartes,
2) The naturalizing of mind,
3) The mentalizing of nature,
4) From substance to process,
5) The obsolescence of the eternal,
6) The reduction of yesterday to tomorrow,
7) Purpose in thought,
8) Exit the spectator,
9) The theory of signs,
10) Laboratory vs. seminary philosophy,
11) Science as a cooperative inquiry,
12) The supremacy of method,
13) Science and society,
14) The great community (cf. Fisch 1951, 19-39).[27]

In other words, all these philosophers, Peirce and Whitehead included, (1) repudiated Descartes's philosophy, conceived of as the matrix of all modern philosophy. Then, trying to overcome Cartesian dualism, (2-3) promoted a continuity between mind and nature, assisted by the idea of evolution. Besides, (4) the concept of substance itself, and consequently the one of mental substance (*res cogitans*), as well as material substance

[26] Cf. Fisch 1951, 1: "The Continuity within the period may be illustrated by reference to (A) the personal relations and mutual attractions between the major figures; (B) the general social and intellectual influence to which they were all in varying degrees subject; and (C) the philosophic tendencies within the period to which all or most of them contributed, tough again in varying ways and degrees."

[27] In the following paragraphs I briefly explain the meaning of these fourteen major topics, as presented in Fisch's book.

(*res extensa*), lost their prominence, turning out to be derivative forms of events and processes.

With the rejection of fixed substances, (5) the interest in *ideas* (seen as eternal immutable beings) decreased, making room for a new theory of truth that necessarily involves time and temporalism. Moreover, classic American philosophy accorded relevance to experience and, contrary to British empiricism, (6) they emphasized the future side of experience. For instance, they did not believe that ideas come from experience, in the sense of stemming from some previous experiences; rather, ideas are always to be referred to future experiences, "which they foretold and by which they are to be tested" (Fisch 1951, 25). More generally, one can say that according to them once you cut the future away, the present tends to collapse, losing its thickness as well as its contents (cf. also CP: 5.427).

As a consequence of (5) and (6), a new vision of thought and knowledge also follows. According to the authors, every *thought*, (7) far from lying only on rational cognition, can never be cut off from purpose, because every purpose always comes along with thought. In a similar way, since thought is inseparable from purpose, knowledge is neither the result of a static reflection, nor (8) involves a merely passive subject. The knower registers the truth, but the truth is what he himself creates. The knower is the "co-efficient" (Fisch 1951, 28) of truth, and not its unbiased spectator. For its part, this radically new version of knowledge and knower has the notorious (9) theory of signs at its core. Symbolism is indeed, and for all thinkers, not only relevant to civilization but indispensable for knowledge, as "every thought is in signs" (CP: 5.253) and every sign must be interpreted in another, indefinitely.

The remaining characteristics concern the philosophers' general attitudes toward philosophy and science. Fisch underlines (10) that in this period philosophy changed from "seminary philosophy" to "laboratory philosophy," meaning that philosophy improved its experimental side – also in conjunction with the rise of the American university which took place at that time (cf. Fisch 1951, 30). Classic American Philosophers took the relevance of science into great consideration, in different regards. First of all, they did not conceive science mainly as a "systematized knowledge", but more as investigation, inquiry, shared and conducted in teams. Therefore, (11) science was seen more as a way of living, or – better yet – as the perfect expression of a

cooperative inquiry. (12) Scientific method became the subject of a detailed analysis, and (13) society and social sciences also became topics of research. Finally, (14) they rejected the Cartesian assumption "that the ultimate test of certainty is to be found in the individual consciousness" (Fisch 1951, 36), giving new importance to the concept of community, indispensable for reaching the truth.

Thus, Fisch's valuable outline allows us first to understand both the general context and framework of Peirce's and Whitehead's philosophies, and second to clearly and precisely grasp the main and original tenets of their thoughts, assumed as parts of classic American philosophy. Therefore, we can also accept these fourteen topics as the main, and most general, common theoretical characteristics of Peirce and Whitehead, but their similarity does not lie just in the fact they can be associated to a certain philosophical period.

2.2. A Startling General Affinity

As I have already mentioned referring to Whitehead's reaction to Peirce's writings (cf. § 2.1), the closeness of Peirce to Whitehead goes farther than the general features of classic American philosophy. As it was noticed from the very beginning,[28] in many reviews of the *Collected Papers of Charles Sanders Peirce* – for instance by Charles Malik on the fifth volume of *Collected Papers*: "The main positive thesis of this review is that Peirce was groping towards a conception of the universe which receives adequate conscious formulation in Whitehead" (Malik 1935, 481). Or yet – as Henry S. Leonard states in 1937:

> One cannot close [his review of Peirce's *Collected Papers*] without remarking on the vast number of startling similarities that are to be found when one compares the work of Peirce with that of Whitehead. Certain differences of style and of method are outstanding. But the number of the common doctrines, both general and special, is beyond what might be expected. Both thinkers break into new paths of thought, but it largely seems like the common exploration of one new path (Leonard 1937, 121).

[28] Whitehead was still alive and teaching Philosophy at Harvard.

Therefore, after reading such statements, it is natural to ask ourselves: What did they (namely Whitehead and the first Peirce scholars) see as so analogous in Peirce's texts to say that Peirce and Whitehead explored "*one* new path"?

A first attempt to answer this question comes from Murray Murphey, a Peircean scholar, who in 1961 wrote: "In seeking to develop a fully articulated philosophic system based upon a rigorous logical and mathematical foundation, Peirce chose a road which only Whitehead has since followed." (Murphey 1961, 295). Thus, according to Murphey Peirce and Whitehead alike developed (or at least tried to develop) 'fully articulated systems based on a logical and mathematical foundation'. In other words, their originality lies both in the very attempt to *fully articulate a philosophic system* and in *founding it on logic and mathematics*. If it is apparent why a foundation on logic and mathematics can be singled out as characteristic, why should it be original to fully articulate a system? To shed more light on this aspect, let me examine James Bradley's analysis of the *Transformations in Speculative Philosophy* (2003/2012), where he focuses on this peculiarity, going so far as to say that in the 20th century Peirce and Whitehead brought about a "renaissance of speculative philosophy" (Bradley 2003/2012, 444). In what sense? First, to indicate that the authors tried to fully articulate a system (based then on logic and mathematics) means that they inscribed themselves in the speculative philosophical tradition; and this represents quite an exception in 20th century's philosophy, since this century tends to repudiate and deconstruct metaphysics and the philosophical tradition. On the contrary, Peirce and Whitehead tried to carry on the speculative philosophical tradition; that is, they never stopped aiming at finding a unique key to understand every possible subject in any field, albeit in a very innovative and revolutionary way. More particularly, their renaissance of speculative philosophy can be described as follows. Bradley maintains:

> Their work has the empiricist intent of rescuing rational structure from the absolute necessities of Mind or pure Reason, characteristic of European rationalism and idealism, and the rationalist intent of restoring intelligible order to those structures of experience which speculative and anti-speculative philosophers alike have often consigned to the realm of the non-rational, typically under the rubrics of 'ineffability,' 'feeling,' or 'action' (Bradley 2012, 444).

Accordingly, their attempts are speculative and are connoted by two tendencies, opposite at first glance: the first empiricist and the second rationalist. An *empiricist* intent in respect to rational structure and a *rational* one in respect to the structures of all experiences. From another point of view, to better understand how we can speak of speculative philosophy and how these two tendencies interact with each other, it is useful to adopt and explore David Ray Griffin's label of "constructive postmodern philosophers."[29]

On the whole, according to Griffin we should consider Peirce and Whitehead as "postmodern" insofar as they seek "to transcend both *modernism*, in the sense of the worldview that has developed out of the seventeenth-century Galilean-Cartesian-Baconian-Newtonian science, and *modernity*, in the sense of the world order that both conditioned and was conditioned by this worldview" (Griffin 2007, x). In trying to overcome modernity they construe reason as emerging from experience (*empiricist intent*),[30] and in this sense they tackle it according to an empiricist point of view. But their empiricism is far from British empiricism. Their concept of experience is broader, as revealed by the fact they investigate the *intelligible order* of experiential structures (*rationalistic intent*), which means that experience is given to us not as unconnected atoms of perception, but always according to some logic of relatedness. Also due to this way of understanding experience, Griffin connotes this kind of postmodernism as "constructive" or "reconstructive." He explains "constructive postmodernism" as a philosophical position which overcomes modernity not by destroying its rational impulse, but by seeking to express a new universal conception beyond *modernism*; a universal conception apt to fit with logical, mathematical and experiential relational structures. For this reason, as I mentioned above, we can say that they still aim at doing speculative philosophy. With Griffin's own words, they tried to

[29] Cf. Griffin 1993. Under this label, he referred to Peirce and Whitehead, but also to James, Bergson and Hartshorne. I am here adopting Griffin's category and explanation only to some extent, to gain a deeper comprehension of the two tendencies Bradley pointed out. Indeed, I do maintain that the characterization here reported does not fit with James, Bergson and Hartshorne as well as it does with Peirce and Whitehead. The reasons for taking this stand shall be explored in detail in Part III, § 1.

[30] As Bradley stresses upon, recent speculative philosophy, which includes also Bergson and Heidegger, takes into a great consideration the topic of experience and existence, conceived as ultimate, since it is not possible to deduce experience and existence from logical patterns.

> overcome the modern worldview not by eliminating the possibility of worldviews as such, but by constructing a postmodern worldview through a revision of modern premises and traditional concepts in the light of inescapable presuppositions of our various modes of practice. That is, [they] agree with deconstructive postmodernists that a massive deconstruction of many received concepts is needed. But its deconstructive moment […] is not so totalizing as to prevent reconstruction (Griffin 2007, x-xi).

Moreover, their speculative philosophy intends to find a final interpretation that can embrace every kind of phenomenon and every field of inquiry. And, as experiences are interconnected, so the various disciplines – humanistic and formal sciences as well as natural sciences – are viewed as related to one another. As Griffin puts it,

> The reconstruction carried out by this type of postmodernism involves a new unity of scientific, ethical, aesthetic, and religious intuitions. […] While critical of many ideas often associated with modern science, it rejects not science as such but only that *scientism* in which only the data of the modern natural sciences are allowed to contribute to the construction of our public worldview (Griffin 2007, xi).

So, we can identify in the last part of the passage cited also another prominent characteristic of Peirce's and Whitehead's thoughts. So far we have indicated their peculiarity in (a) their bringing about a *renaissance of speculative philosophy* through the elaboration of a *reconstructive thought*, which (b) pursues a unique final interpretation for every phenomenon and (c) is leaded by both an *empiricist* and *rationalist* intents, but their works are also strongly connoted by the relevance accorded to science. Even though the present work does not focus on their relation to science, given its importance it is at least necessary to roughly illustrate the way their philosophies valued and are related to science, especially mathematics.

2.3. The Alliance of Science and Philosophy, with Special Reference to Mathematics

As we have just read above, Peirce and Whitehead reject scientism but not science. Also, we already illustrated how close some of their logical and mathematical conclusions are (cf. § 1.2), and mentioned that they built their philosophical theories on

logical and mathematical bases. Therefore, how do they view science, and especially mathematics? To what extent can it be regarded as the basis of their thought?

On the whole, before understanding how Peirce's and Whitehead's philosophies are founded on logic and mathematics, we need to clarify their general (non-scientificist) approaches to science: not so much the way they personally lived it – they both were great scientists –,[31] but the way it is expressed in their writings. Indeed, differently from that kind of post-modern thought that, "in contrast with scientificist optimism, […] has oscillated between the presentation of science as a mere power structure or as just another form of literature" (Nubiola 1998, 2), Peirce and Whitehead maintain and emphasize the role of science and its method, presenting it neither as the accomplishment of philosophy nor as a mythological narration that does not pertain to the realm of truth. On the contrary, they conceive of science as one of mankind's most valuable and fruitful efforts in pursuing truth, without reducing, for this reason, truth itself to some scientific achievement. Actually, we can affirm first and foremost that both view science as concerned with truth. In Peirce's account, science generally expresses *the human impulse to penetrate into the reason of things*. He states: "If we are to define science, […] it does not consist so much in knowing, nor even in "organized knowledge," as it does in diligent inquiry into truth for truth's sake, without any sort of axe to grind, nor for the sake of the delight of contemplating it, but *from an impulse to penetrate into the reason of things*" (CP: 1.44, c.1896, emphasis added).[32] And for the

[31] Peirce was, as reported in Brent 1998, 2: "Mathematician, astronomer, chemist, geodesist, surveyor, cartographer, metrologist, spectroscopist, engineer, inventor; […] historian of science, mathematical economist, lifelong student of medicine." Whitehead, for his part, was a great mathematician and logician before turning to metaphysics, and he was committed also to physics, as *The Principle of Relativity* testified. Moreover, as we already mentioned, both of them wrote about mathematics, logic and physics. With respect to Peirce, see especially the writings collected in the four volumes of *The New Elements of Mathematics*. With respect to Whitehead, besides *A Treatise of Universal Algebra* (1898), *On Mathematical Concepts of the Material World* (1906), *The Axioms of Projective Geometry* (1906), *The Axioms of Descriptive Geometry* (1907), *An Introduction to Mathematics* (1911), and of course *Principia Mathematica* (1910-13, with B. Russell), see the so-called *1920 books*, where he elaborated a "natural philosophy" (CN: vii-viii), or "scientific philosophy" (CN: 23), in the sense of a "pan-physics" (PRel: 4). They are: *An Inquiry Concerning the Principles of Natural Knowledge* (1919, 1925 2nd edition revised), *The Concept of Nature* (1920) and *The Principle of Relativity with Application to Physical Science* (1922).

[32] Peirce refers indeed to science as the true experience of inquiry of truth. On this point, see also CP: 7.54 (*Minute Logic*, 1902): "Science is to mean for us a mode of life whose single animating purpose is to find out the real truth, which pursues this purpose by a well-considered method, founded on thorough acquaintance with such scientific results already ascertained by others as may be available, and which seeks coöperation in the hope that the truth may be found, if not by any of the actual inquirers, yet ultimately by those who come after them and who shall make use of their results. It makes no difference

same reason Whitehead puts science near philosophy, introducing them as "merely different aspects of one great enterprise of the human mind" and as cooperating "in the task of raising humanity above the general level of animal life" (AI: 140).

Given such a great esteem for science, they not only underline the relationship of science with truth, and its relevance as an inalienable attitude of human beings, but criticize as well the reductions made of science, especially in the Modern Age. For instance, Whitehead's "fallacy of misplaced concreteness"[33] is well known. It refers to an error, often committed dealing with scientific entities. This error consists in mixing up *concrete experiences* with *abstract entities*. For example, we see a chair and we try to explain its composition and configuration through a scientific explanation that goes up to electrons. But when this process of explanation and progressive abstraction is ended, we completely "forget" that '*electron*' is a name given to an element of our thought. To notice that Whitehead, in underlining this distinction between concrete and abstract, between the perception of the chair and the electron, does not want to affirm at all that the electron is less "valid," or even less "real" than the event of the perception of the chair. They both are real, but their difference lies in their concreteness/abstraction. Indeed, the entity "electron" is an *entity* of thought referring to a *factor* present, along with a lot of others, in that *fact* of the chair perceived by us. The "image I saw" in perceiving the chair is concrete (from the latin *cum-crescor*, to grow together), while the electron is abstract (from the latin *abs-traho*, to draw-away) from that concreteness, is cut off from the chair perceived. Apart from the reference of the abstract to that concreteness, the abstract itself, that is the *electron*, does not exist. In another perspective, analogous considerations regarding concreteness and abstraction can be actually found in Peirce's analyses, where the difference and interdependence of abstract and concrete is essential because it is only understanding their intertwinement that hypotheses (and abductions) rise and work.[34]

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how imperfect a man's knowledge may be, how mixed with error and prejudice; from the moment that he engages in an inquiry in the spirit described, that which occupies him is science, as the word will here be used."

[33] For instance, Whitehead describes in SMW: 52 this fallacy as follows: "There is an error; but it is merely the accidental error of mistaking the abstract for the concrete. It is an example of what I will call the 'Fallacy of Misplaced Concreteness'." Cf. also CN: 13-14.

[34] Cf. C.S. Peirce MS 692, 1901: "Looking out of my window this lovely spring morning I see an azalea in full bloom. No, no! I do not see that; though that is the only way I can describe what I see. That

So, according to Peirce and Whitehead once you avoid reducing science to mere "organized knowledge" and avoid confusing it with concrete experience, you can finally face science's essence: namely, science can really penetrate into the reason of things. Though at first glance this statement seems quite plain, nonetheless it entails two very important consequences. On the one hand, as Peirce has excellently expressed replying to the accusation of being "too anthropomorphic:"

> Every scientific explanation of a natural phenomenon is *a hypothesis that there is something in nature to which the human reason is analogous*; and that it really is so, all the successes of science in its application to human convenience are witnesses. They proclaim that truth over the length and breadth of the modern world" (EP2: 193, emphasis added).

In other words, the first implication is that science, and its successful hypotheses, continuously prove the existence of a deeper affinity between human reason and nature, which makes human hypotheses work so well. In this way, science is embedded in metaphysics. Furthermore – and this is the second implication – if the successes of science mean that science is really able to penetrate into the logic of things, in which way would they do it? How do they penetrate into the logic of things? And if they did it, what would be the difference from philosophy? And how to understand the aim of philosophy, then? To clarify this point, Peirce elaborated many classifications of the sciences,[35] whereas Whitehead's organicist approach investigates the matter from a less taxonomic perspective. In both cases, however, it is necessary first to interpret science, that is, to establish what we are referring to when we speak of "science."[36]

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is a proposition, a sentence, a fact; but what I perceive is not proposition, sentence, fact, but only an image, which I make intelligible in part by means of a statement of fact. This statement is abstract; but what I see is concrete. *I perform an abduction when I do so much as express in a sentence anything I see.* The truth is that the whole fabric of our knowledge is one matted felt of pure hypothesis that is confirmed and refined by induction. Not the smallest advance in knowledge can be made beyond the stage of vacant staring, without making an abduction at every step" (emphasis added).

[35] Cf. for instance the *Century Dictionary* (1889): 5397; RLT: 116-120 (1898); Manuscript L 75 (1902); EP2: 258-266 (1903).

[36] The attention Peirce and Whitehead paid to biology is also peculiar, but their treatises on the subject are very different from those on mathematics. Biology is indeed pointed to as a powerful source for metaphysics, meaning that it calls for new metaphysical conceptions. Particularly, Peirce states the biologists themselves are such greater builders of concepts, that philosophers should take them as their teachers in this regard (cf. CP: 2.464).

As it can already be deduced from the previous paragraphs, for both the answer to this question is: *mathematics*. Mathematics is the science that best corresponds to the description of science made above: it is mathematics that according to both authors penetrates into the logic of things. Besides, mathematics is the science that has the most relevant place in their thoughts, albeit in different fashions. Therefore, we must address to mathematics the questions above posed in relation to science in general. Thus, let me tackle those issues regarding: a) the peculiarity of mathematical investigation, b) the connections between mathematics and philosophy, c) the consequent definition of the aims of philosophy in Peirce's and Whitehead's thoughts.

2.3.1. The Peculiarity of Mathematical Investigation

First and foremost, mathematics is a unique science because it does not pertain to any empirical perceptual fact, as Peirce often remarks.[37] Its aim lies in "finding what we roughly call generality or rationality or law to be true, independently of whether you and I and any generations of men think it to be so or not" (EP2: 86-87, 1901). In this sense, as Whitehead pointed out, mathematics represents the most abstract science of all.[38] It "studies what is and what is not logically possible, without making itself responsible for its actual existence" (EP2: 259, 1903). Thus, mathematics can really be interpreted as the realm of "the most complete abstractions to which the human mind can attain" (SMW: 36), and its aim is to delineate all the conceivable relations among

[37] Due to this characteristic, Peirce goes so far as to put into question the definition of mathematics as a science. Better yet, Peirce calls it a science for the spirit and the purpose which leads every mathematician, but also emphasizes that mathematics does not contain all the characteristics the other sciences have: "Mathematics appears to me to be a science, as much as any science, although it may not contain all the ingredients of the complete ideas of a science. But it is a science, as far as it goes; the spirit and purpose of the mathematician are acknowledged by other scientific men to be substantially the same as their own. Yet the greater part of the propositions of mathematics do not correspond to any perceptual facts that are regarded as even being possible. The diagonal of the square is incommensurable with its side; but how could perception ever distinguish between the commensurable and the incommensurable?" (EP2: 86, 1901).

[38] Cf. SMW: 22: "The point of mathematics is that in it we have always got rid of the particular instance, and even of any particular sorts of entities. So that for example, no mathematical truths apply merely to fish, or merely to stones, or merely to colours. So long as you are dealing with pure mathematics, you are in the realm of complete and absolute abstraction. All you assert is, that reason insists on the admission that, if any entities whatever have any relations which satisfy such-and-such purely abstract conditions, then they must have other relations which satisfy other purely abstract conditions. Mathematics is thought moving in the sphere of complete abstraction from any particular instance of what it is talking about."

entities.[39] Accordingly, we can affirm that mathematics penetrates into the reason of things because, with Whitehead's own words, it observes the interconnections of things and shows how "the events of this evershifting world are but examples of a few general connections or relations called laws. Its aim is "to see what is general in what is particular and what is permanent in what is transitory" (Whitehead 1911, 4).[40]

2.3.2. Connections between Mathematics and Philosophy

There are many references to mathematical theories in both Peirce's and Whitehead's writings, also where they deal with specific philosophical problems.[41] In this sense, their works are themselves evidence of the profound connection between mathematics and philosophy. Nonetheless, the authors plainly express how this connection should be thought, even though Whitehead fluctuates between two contrary positions. For this reason, let me first outline Peirce's viewpoint, and then Whitehead's one.

Borrowing from Comte, Peirce elaborated different versions of classifications of the sciences, especially between 1902 and 1903 (cf. also Part II, § 1). Generally, he distinguishes the sciences of discovery[42] into (i) mathematics, (ii) cenoscopy (or philosophy, which concerns positive phenomena in general and in its turn is divided into three: phenomenology, normative sciences and metaphysics), and (iii) idioscopy (or special sciences, about special classes of positive phenomena, e.g. physics, chemistry, biology..). The first (i) establishes the principles for the second (ii) and (ii) does the same for the third (iii). Then, the (iii) presents the contents for the (ii), while the (ii) presents the contents for the (i). In other words, for our present purposes, mathematics establishes the principles for philosophy, while philosophy gives the contents to mathematics. Then the mathematicians "confine their studies almost exclusively to

[39] Cf. CN: 167-68.

[40] There are certainly more differences to note as the analysis of their conceptions continues. However, for the present this general account of Whitehead's and Peirce's views of mathematics can be sufficient, since it helps clarify their general perspective and approach to mathematics.

[41] On Peirce's account, consider especially his concept of continuity and its mathematical discussion. Moreover, see his great work on existential graphs. In this regard, see Zalamea 2012. On Whitehead's account, in his works as metaphysician an excellent example is given by Part IV of *Process and Reality* ("The Theory of Extension").

[42] The other sciences are the sciences of review and practical sciences.

hypotheses which present only systems of relationship that are perfectly regular or as nearly so as the nature of things allows" (EP2: 173, 1903) and the philosophers discover "what really is true; but [they] limit themselves to so much of truth as can be inferred from common experience" (EP2: 259, 1903).

On Whitehead's side, the matter is more complicated: contrary to what some scholars have said,[43] he does maintain this priority of mathematics, and in some sense the dependence of metaphysics upon it. For instance, let us consider the final statement of *Modes of Thought*. After emphasizing the closeness between poetry and philosophy, Whitehead says: "poetry allies itself to metre, philosophy to mathematic pattern" (MT: 174). So, since the metre is the principle that poetry follows (classic poetry, to be accurate), we are suggested to think of mathematical pattern as the principle philosophy follows.

From another perspective, it is well known that in *Process and Reality* Whitehead describes the path philosophy follows with the image of the airplane's flight. He states:

> The true method of discovery is like the flight of an aeroplane. It starts from the ground of particular observation; it makes a flight in the thin air of imaginative generalization; and it again lands for renewed observation rendered acute by rational interpretation (PR: 5).

And it is indeed extremely remarkable that, even though this is almost never reported, less than five years before, he chose a very similar image to describe the method of mathematics itself, in *Science and the Modern World*:

> Nothing is more impressive than the fact that as mathematics withdrew increasingly into the upper regions of ever greater extremes of abstract thought, it returned back to earth with a corresponding growth of importance for the analysis of concrete fact (SMW: 34).

In this way, we can infer that also Whitehead brings mathematics and philosophy into alliance.[44] Moreover, as James Bradley shows, we might understand the whole of

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[43] Cf. Lowe 1964, 438.

[44] Indeed, for Whitehead mathematics pertains so much to philosophy, that he wrote an essay on the connection between mathematics and the good. Cf. SP: 105-121 (1941).

Process and Reality as following an "algebraic method" (Bradley 1991, 133-34). In fact, as the table of contents indicates, "the entire work is an extended exercise in the elaboration of hypotheses. Part I presents the 'categoreal scheme' or set of 'working hypotheses' (AI: 220f); Part II, and indeed the rest of the book, is concerned with 'discussions and applications'" (Bradley 1991, 134). However, especially during his later years, Whitehead's position was quite the other way around, that is: philosophy and mathematics still need to work together, but as complementary. Their functions are now conceived as opposite. As the author explains in *Mathematics and the Good* (SP: 97-113), "mathematics is the study of patterns" (SP: 106), which are relations among elements abstracted from our experience, whereas "the task of philosophy is to reverse this process [of abstraction] and thus to exhibit the fusion of analysis with actuality" (SP: 113). For instance, Whitehead stresses that "even in arithmetic you cannot get rid of a sub-conscious reference to the unbounded universe – you are abstracting details from a totality, and are imposing limitations on your abstractions" (SP: 103), thus in this case philosophy should re-connect the abstractions of arithmetics to the totality of concrete experience, regaining that "sub-conscious reference to the unbounded universe" which is still traceable in science, though necessarily omitted.

2.3.3. Definition of the Aims of Philosophy

In the light of the analysis of mathematics and philosophy, after this analysis started from mathematics, we gain a deeper understanding of Peirce's and Whitehead's views of philosophy in general. If some differences have already emerged, let me now pinpoint them, analyzing again first Peirce, and then Whitehead. While classifying the sciences, in *Philosophy and the Conduct of Life* Peirce makes a list of the characteristics of Philosophy as a science. They are five according to him:

> *First*, it differs from mathematics in being a search for real truth ; *second,* it consequently draws upon experience for premises and not merely, like mathematics, – for suggestions; *third*, it differs from the special sciences in not confining itself to the reality of existence, but also to the reality of potential being; *fourth*, the phenomena which it uses as premises, are not special facts, observable with a microscope or telescope, or which require trained faculties of observation to detect, but they are those universal phenomena which saturate all experience

> through and through so that they cannot escape us; *fifth*, in consequence at once of the universality of the phenomena upon which philosophy draws for premises, and also of its extending its theories to potential being, the conclusions of metaphysics have a certain necessity, […] they inform us not merely how the things are but how from the very nature of being they *must* be (EP2: 35).

If we now turn to Whitehead, some characteristics from the list are similarly stated, especially points 1, 3 and 5. As we have already seen, according to Whitehead philosophy differs from mathematics by virtue of its search for "real" truth, that is truth pertaining to real facts, to concreteness. Moreover, philosophic inquiry recognizes potential beings as objects of its investigation, including them in the realm of reality.[45] Finally, the aim of philosophy according to Whitehead is exactly to find out the "very nature of being," and therefore to assert how things must be. In Whitehead's own words: "Speculative Philosophy can be defined as the endeavour to frame a coherent, logical, necessary system of general ideas in terms of which *every element of our experience can be interpreted*" (AI: 222). All the same, in regard to the other points (2, 4) Whitehead's position is quite far from Peirce. He denies that the difference between special sciences and philosophy resides in their different objects, i.e. special facts for special sciences and universal phenomena for philosophy. According to Whitehead, we never deal with universal phenomena as such, not because universal characteristics of all phenomena are not discernable – he does maintain that – but because "universal phenomena" are to be comprehended as a result of "imaginative generalization." As we have seen with the example of the flight of airplane, for Whitehead even in the case of philosophy we need to start from a limited area or region of observed phenomena. Experience is always particular, we cannot escape that.[46] Thus, Whitehead describes the methods of mathematics and philosophy as being closer (cf. § 2.3.1) than Peirce does. Again, this is related to the fact of "imaginative generalization." If Peirce thinks that mathematics draws upon experience only for *suggestions*, we should say that for

[45] Cf. his account of "eternal objects," a quite controversial topic among Whitehead's scholars. Despite controversies the author indeed describes them as "pure potentials" (PR: 23).

[46] Whitehead himself testified in *Science and the Modern World* that he reached his philosophical convictions starting from mathematics and physics. He says: "It is equally possible to arrive at this organic conception of the world if we start from the fundamental notions of modern physics, instead of, as above from psychology and physiology. In fact by reason of my own studies in mathematics and mathematical physics, I did in fact arrive at my convictions in this way" (SMW: 153).

Whitehead the same could be said for philosophy, since philosophy consists in elaborating a "coherent, logical, necessary system of general ideas."

Besides, on the whole the more significant difference is the very classification of philosophy itself. If on Peirce's account philosophy is a science, as described above, for Whitehead it is not. Indeed, for him sciences always deal with abstractions, whereas philosophy – as we already mentioned – "reverses this process," and so it follows that "philosophy is not a science" (SP: 113). In reversing the scientific process of abstraction, philosophy accomplishes both *critical* and *constructive* tasks at the same time. 'Critical' because it reconnects the abstractions of sciences to concrete experience, and 'constructive' because it describes the concrete fact as such, revealing its universal structure.[47] With Whitehead's own words:

> [Philosophy] seeks those generalities which characterize the complete reality of fact, and apart from which any fact must sink into an abstraction. Science makes the abstraction, and is content to understand the complete fact in respect to only some of its essential aspects. Science and Philosophy mutually criticize each other, and provide imaginative material for each other. A philosophic system should present an elucidation of concrete fact from which the sciences abstract. Also the sciences should find their principles in the concrete facts which a philosophic system presents (AI: 146).

To draw some conclusions from our analysis, we should say first of all that it is true, as Murphey said in the passage quoted at the beginning (cf. this chapter, § 2.2), that Peirce and Whitehead's philosophies are based on mathematics insofar as they develop their philosophies in the light of the most recent discoveries of mathematics of that time. Moreover, they both conceive of mathematics as the most general and abstract science, a science that illustrates relations and draws conclusions concerning hypothetical objects. However, pushing the comparison further, remarkable differences emerged: on Peirce's account mathematics provides the principles for philosophy (in

[47] To understand this passage, as Lowe illustrated, Whitehead's conception of experience is crucial. He says: "[Whitehead] takes the occasion of experience as a bit of the world rather than a phenomenon; that it is a representative bit" (Lowe 1964, 437). Therefore Whitehead conceives of facts as representative of the entire universe, and this assumption follows from Whitehead's organicist view of the universe: every phenomenon is a part of the whole; hence it is connected to the other parts and can tell us something about the whole and its inner connections.

particular, for phenomenology which is the first branch of philosophy), while philosophy gives content to mathematics. Their works are therefore inter-dependent upon one another. To this extent, the same inter-dependence can be found in Whitehead's writings, not only where he points to mathematics as philosophy's "metre," but even later, when he talks about the opposite functions of mathematics and philosophy. Indeed, Whitehead also thought that philosophy and mathematics require each other: mathematics needs the philosophical elucidation of concrete facts in order to abstract from there its principles, and philosophy needs science's abstractions to reconnect them to the concrete, because in so doing it gains a more comprehensive understanding of the concrete fact. Nevertheless, Whitehead's difference from Peirce is that for the former philosophy is not a science, and we will see in the third part of the dissertation what that entails.[48]

Besides mathematics, and before moving on to the other relevant points of connection of Peirce and Whitehead's philosophies, we need to touch upon the relationship of logic and philosophy, since the common opinion sees their thought as having mathematical and logical foundations. To be precise, the issue at stake here is the connection between logic and metaphysics, and not philosophy. Indeed, for Peirce logic itself belongs to philosophy. In his classification it is found in the *normative sciences*, which are posited as the second branch of philosophy, the first being phenomenology and the third metaphysics. More specifically, logic is presented as the third normative science, coming after *esthetics* and *ethics*. According to Peirce then, metaphysics comes after normative sciences, and it must "take as the guide of its every step the theory of logic" because logic is assumed as "the science of thought, not merely the thought as a psychical phenomenon but of thought in general" (EP2: 36).[49] On the

[48] In this regard, I have already mentioned that Lowe's solution to the problem is perhaps too quick. He simply says: "Convictions common to Peirce and Whitehead have been deservedly noticed by commentators, somewhat to the neglect of the first question of metaphysics: How shall metaphysics be pursued? – as a science among the sciences, says Peirce. Not so, says Whitehead; it seeks truth, but a more general truth than sciences seek" (Lowe 1964, 440).

[49] Generally speaking, Peirce introduces logic as follows: "The term 'logic' is unscientifically by me employed in two distinct senses. In its narrower sense, it is the science of the necessary conditions of the attainment of truth. In its broader sense, it is the science of the necessary laws of thought, or, still better (thought always taking place by means of signs), it is general semeiotic, treating not merely of truth, but also of the general conditions of signs being signs (which Duns Scotus called *grammatica speculativa*), also of the laws of the evolution of thought, which since it coincides with the study of the necessary conditions of the transmission of meaning by signs from mind to mind, and from one state of mind to

other hand, Whitehead states in the preface of a Quine's *System of Logistic* that "logic prescribes the shapes of metaphysical thought" (Whitehead 1934b, x-xi), but some of his scholars have hardly criticized the fact that Whitehead's conception of the relationship between logic and metaphysics can be compared to Peirce's primacy of logic over metaphysics (Lowe 1964, 433). For instance, Lowe pointed out that logic is for Whitehead "an instrument of exploration and expression" that "makes possible the exploration of some (but not all) types of connexity for which no adequate means of systematic theoretical treatment had been available", but in this sense it turns to be just one possible instrument of metaphysical activity. Indeed – Lowe continues – "Whitehead wholly casts off the Kantian idea of circumscribing all possible knowledge […] by certain forms implicit in logic" (Lowe 1964, 434-435). Given Whitehead's strong opposition to Kant, and without entering the vast controversy between Kant and Peirce, for the present moment it is sufficient to see how the issue at stake in the critique is indeed quite weak, in the sense that even for Peirce logic does not circumscribe all possible knowledge, since it depends in turn on ethics and esthetics. Therefore, we can say that for both authors logic is extremely essential for metaphysics, inasmuch as it offers guiding principles for making its path safe and feasible.[50] All the same, if we consider logic as a discipline, on Whitehead's view we should finally take the same position assumed for mathematics: logic makes abstractions like every science does, while philosophy elucidates concrete facts, and therefore cannot have logic guiding it – logic is more abstract than philosophy.

To sum up, in this section we tackled i) Peirce's and Whitehead's characteristic conceptions of science; ii) the way they think of mathematics and the consequences on their views of philosophy; iii) how to interpret their logical foundation of metaphysics.

2.4. Specific Points of Resemblances

So far, first we have gone through Peirce's and Whitehead's general characteristics as American Philosophers, then we have touched upon their profound and general

another, ought, for the sake of taking advantage of an old association of terms, be called *rhetorica speculativa*, but which I content myself with inaccurately calling objective logic, because that conveys the correct idea that it is like Hegel's logic" (CP: 1.444, 1896 ca.).

[50] Remember also that Whitehead specifies that speculative philosophy is "the endeavour to frame a coherent, logical, necessary system of general ideas" (AI: 222).

affinity, which Whitehead recognized in some fashion, and finally we analyzed their views of science (especially mathematics), logic and philosophy, since these have been singled out as peculiar to their philosophies. But what are the particular theories or typical features of their philosophies? Apart from a few comparisons of specific topics (see Ch. 3, § 3), I have grouped their common tenets into five points, which exhibit ideas not already introduced under the label of "classic American philosophy." They are: 1) the rational nature of the universe (or "cosmological interest"); 2) realism and experience; 3) a defense of speculative reason; 4) the relevance of the concept of *relation* (and relatedness). Furthermore, as a consequence of these points, we should add another point, absolutely pertinent to the issue of novelty; 5) the creativity of mind and cosmos. As we will see, the more we proceed in our analyses of novelty, the more these five tenets will deepen and become clearer. To elaborate on them a little:

1. *The Rational Nature of the Universe.* As Nubiola and Stearns briefly mentioned (cf. Nubiola 2008, 413; Stearns 1952, 196), both authors stress the "rational nature of the universe," and I want to address three different facets through this expression. First, Peirce's and Whitehead's philosophies entail a cosmology, and this implication is not common at all, especially in the 20th century. Moreover, as far as they explicitly did metaphysics, they were mainly committed to cosmology.[51] For instance, Peirce avows that he came to the study of philosophy "not for its teaching about God, Freedom, and Immortality, but intensely curious about Cosmology and Psychology" (CP: 4.2) and that he was much more at home in cosmology than psychology (cf. RLT: 268, 1898).[52] For Whitehead's part, we need only to consider the fact that his masterpiece, *Process and Reality*, is explicitly an "essay in cosmology," to see the importance cosmology has for him.[53] But – and this is

[51] In this regard, some statements of Charles Morris are remarkable. He says: "I would like to record two points Whitehead made in a conversation with me in October 1933. The first was that he thought his philosophy embodied all the main insights of pragmatism. The second was his belief that the pragmatic movement could be greatly strengthened if it explicitly developed a cosmology. His opinion was that his own cosmology seemed to be the sort of thing that was needed" (Morris 1970, 138-9, fn. 25).

[52] As we will see in detail in Part II, Ch. 3, according to Peirce cosmology is the third branch of metaphysics, but he does often speak of metaphysics itself as cosmology. Also for Whitehead, metaphysics often seems to be the same as cosmology, and vice-versa.

[53] Moreover, as Reynolds pointed out, not only do they share a common intent to build a cosmology, their cosmological thoughts also share some general characteristics. For instance, their cosmologies

the second aspect I want to touch upon – the salience of cosmology is not only due to personal or accidental reasons. For Whitehead, as he states in *Process and Reality*, "every proposition proposing a fact must, in its complete analysis, propose the general character of the universe required for that fact" (PR: 11). Peirce also stresses the same point when he affirms: "What sort of a conception we ought to have of the universe, how to think of the *ensemble* of things, is a fundamental problem in the theory of reasoning" (W3: 307, 1978). Accordingly, for both authors metaphysics (as well as logic to some extent) requires cosmology: the truth of any proposition, reasoning or fact always concerns and embeds the problem of the totality of thing, of the universe.[54] Thirdly, to state the rational structure of the universe means to promote a new view of reality. Indeed, by considering this implication, according to which the entire universe is needed by every proposition, reasoning or fact, we find ourselves in front of a logic that goes beyond man and that can be found in all nature alike. "The process of nature and the process of thought are at one" (W8: 17, 1890), Peirce says. In this sense, there is a "rational nature of the universe" that goes throughout it; and that makes us recognize and accept a new conception of reality. There is no longer any gap or dualistic separation between mind and matter (as it was in Descartes and the modern philosophical tradition): the universe is one.[55] Within it then, there is a plurality of things in communion with one another. Everything is related, and the universe is always in development, bringing about changes and modifications of the entities themselves. Thereby, this characteristic of the *rational structure of the universe* brings our attention to the second main shared aspect of Peirce's and Whitehead's philosophies: realism.

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specifically take "development and change" into great consideration (Reynolds 2002, 101). However, we will analyze more seriously their affinities the more our investigation will proceed. See in particular Part II, Ch. 3 and Part III, Ch. 3.

[54] Peirce is indeed very harsh on this point, going so far as to say in *What Pragmatism Is* that "instead of merely jeering at metaphysics, like other prope-positivists, whether by long drawn-out parodies or otherwise, the pragmaticist extracts from it a precious essence, which will serve to give life and light to cosmology and physics" (EP2: 339, 1905).

[55] Cf. in this regard Peirce's theory of objective idealism, or Peirce's pan-experiential view. In both cases, specific analyses will come in the following chapters.

2. *Realism*. Very differently from many philosophers in the 20th century, both Peirce and Whitehead strongly support realism. While referring to other works for a detailed analysis of such an important and vast issue,[56] for the moment it is sufficient to indicate their kinds of realism as "largely successful attempts to break out of the imprisonment 'within the circle of our own ideas'" (Platt 1968, 238).[57] As Kultgen observed, they similarly deny the Kantian distinction between noumena and phenomena (cf. Kultgen 1960, 288). Accordingly, for them we do have direct experience of things-in-themselves or – better yet – "the real is wholly open to us" (Kultgen 1960, 291). Consequently, the starting point of metaphysics is in both cases acknowledged as the observation of experience, of phenomena. As Peirce states: "Metaphysics, even bad metaphysics, really rests on observations […] and the only reason that this is not universally recognized is that it rests upon kinds of phenomena with which every man's experience is so saturated that he usually pays no particular attention to them" (CP: 6.2). Whitehead's philosophy also lies on a very close assumption, since for him "it is possible to grasp [the] structure [of reality] in a single concept and to spell out its structure in a scheme of categories and apodictic statements" (Kultgen 1960, 293). Thus, their realistic perspectives are not minimal since they do not only claim a certain irreducibility of object to subject. On the contrary, the relationship between object and subject is quite complex in their writings, because for them object and subject "are held together in dynamic tension" (Platt 1968, 239) at every time. But their positions are realistic insofar as according to them reason can know the world as it is. So they do not support

[56] Cf. especially Maddalena 2005 and Mayorga 2007 for Peirce, Alderisio 1952, Johnson 1973 and Bradley 1994 for Whitehead. Furthermore see Reese 1952 for a comparison on this topic.

[57] Platt further explains: "Out of the modern period emerged a growing skepticism about the possibility of 'knowing the world as it really is'. The relativity of the known to the categories of the knower combined with the radically divergent pictures of the world provided by common sense and science has led to a 'failure of nerve' as regards the possibility of direct access to the external world as it is. Various types of phenomenalism and representative realism in epistemology rose to deal with this problem. Other philosophies such as phenomenology and existentialism of certain varieties rooted themselves in a kind of Cartesian subjectivism. In the midst of these various attempts to build a world out of the subject, certain thinkers have attempted to maintain an epistemological realism of the direct access type. Two of the most significant attempts at doing this in recent times can be found in the thought of Peirce and Whitehead" (Platt 1968, 238-239).

realism as a form of anti-subjectivism, but they do emphasize the role of reason and its power of knowing and "penetrating into the reason of things."

3. *Speculative Reason*. The logic that pervades the universe and exceeds human beings (see point 1), does not exclude the latter from the very possibility of comprehending the universe and enriching it through the means of reason. Besides, for Peirce and Whitehead, to be promoters of realism means to attest to the "transcendence of subjectivity" (cf. Platt 1968), both in the sense that the solipsism typical of Modernity is banished, and in the sense that human beings' reason does cross outside of itself. Also, it means that we can dare to do speculative philosophy again. In fact, as Bradley pointed out "the significance of Peirce and Whitehead resides in their defense of speculative reason against its critique by continental and analytical thinkers alike. […] There is no need here to abandon speculative reflection, either for the unsayability of pure difference or for naturalism" (Bradley 2012, 447). All the same, that does not entail that they promote any sort of traditional rationalism. Rather, according to them human reason takes part in to the logic of the universe and does not impose its own schemes on the rest. All things considered, there still remains a gap between thought and existence, and in this way, philosophers also leave room for contingency, as well as freedom, in the universe (cf. also Lowe 1964, 445 and Bradley 2012, 448). Furthermore, for Peirce and Whitehead the value of reason is pragmatic and needs to be pragmatically tested (cf. especially PR: 181).[58]

4. *The Concept of Relation*. As the first point to some extent suggested, the concept of relation plays a prominent role in both philosophies.[59] On the whole, as Lowe highlighted: "Both men look for the key to understanding not only metaphysical but every other philosophic subject matter in discovery of

[58] It is probably true that, if Whitehead had read more from Peirce, he wouldn't have written in *Adventures of Ideas* that "Another type of reaction is to assume, often tacitly, that if there can be any intellectual analysis it must proceed according to some dogmatic method and thence to deduce that intellect is intrinsically tied to erroneous fictions. This type is illustrated by the anti-intellectualism of Nietzsche and Bergson, and tinges American Pragmatism" (AI: 223), cf. also Part III, Ch. 2, § 1.2. In this case, he is perhaps referring to James's radical empiricism.

[59] In regards to the concept of relation for Peirce see in particular Fabbrichesi 1992 and 1994; according to Whitehead see Paci 1954b and Paci 1964b, also Mesle 2008.

relational structures" (Lowe 1964, 431). Peirce indeed discovers the logic of relatives, which – in his opinion – all necessary reasoning belongs to (cf. EP2: 36, 1898). In fact, he affirms that "[In diagrams t]he Very Object under investigation […] is the *form of a relation*" (CP: 4.530), and more generally he goes so far as to say that "every fact is a relation" (CP: 3.416). Moreover, Peirce himself declares:

> In my own mental history, it was the study of relations – in theory and in practice – which brought me to see that all conceptions, however abstracted and lofty, were capable of being defined with perfect formal precision in terms of the conceptions of everyday life. It was this view which I endeavored to embody in my maxim of Pragmatism (MS 313: 30-1, 1903).

For Whitehead's part, we can say by quoting Lowe that the first hint of his

> Passion for relational concepts was his Royal Society memoir of 1906, "On mathematical Concepts of the Material World," in which he formulated the classical and various novel conceptions of kinematics in terms of the properties […] of polyadic relations. In his middle period, devoted to the philosophy of natural science, he described the perceptual knowledge on which natural science rests as a sense-awareness of polyadic relations. […] The whole topic of this period is most concisely called by the name Whitehead gave to the chief philosophical chapter in his Principle of Relativity "The Relatedness of Nature" (Lowe 1964, 431-432).

Later on, we find in *Process and Reality* the "relatedness" of actual entities indicated as one of the three topics of the book, together with the becoming and being of actual entities.[60] In this way, and also as a consequence of their

[60] Cf. PR: xiii. "The positive doctrine of these lectures is concerned with the becoming, the being, and the relatedness of 'actual entities'. An 'actual entity' is a *res vera* in the Cartesian sense of that term; it is a Cartesian 'substance', and not an Aristotelian 'primary substance'. But Descartes retained in his metaphysical doctrine the Aristotelian dominance of the category of 'quality' over that of 'relatedness'. In these lectures 'relatedness' is dominant over 'quality'."

dismissal of substantial categories, the concept of relation turns out to be at the very heart of both philosophies.[61]

5. *The Creativity of Mind and Cosmos*. Creativity is certainly essential to provide an account of novelty. In part as a consequence of the previous tenets, we can affirm that the way Peirce and Whitehead think of both the universe and the mind renders them as creative processes (cf. Rosenthal 1996). As Whitehead states: "The universe is a creative advance into novelty" (PR: 222), and – from his own perspective – Peirce underlines that the universe is a place where "real chance begets order" (CP: 6. 594). Therefore, both philosophers deny determinism. As Hartshorne briefly stated in this regard: "Creativity is the production of *new definiteness*. It is the ultimate or universal form of emergence. […] For Whitehead, as for Peirce […] reality is in the making and classical determinism is false (Hartshorne 1984, 104). Also, reason and human knowledge are presented as being intrinsically creative and not merely because, as Peirce notes, "the process of nature and the process of reason are one" (CP: 6.581). On the one hand, Whitehead defines reason as the "organ of emphasis upon novelty" (FR: 15), so that the essential characteristic of reason consists in its power of grasping novelties and continuously transcending its previous knowledge. On the other hand, Peirce's most famous concept is probably that of *abduction*, or the process of forming an explanatory hypothesis, which has the merit of being "the only logical operation which introduces any new idea" (EP2: 216, 1903). In this way it is not just the process of the universe that is creative, nor is it the case that mental processes are creative only insofar as they take part in the process of the universe, but they are essentially creative in themselves.

Thus, in this theoretical overview I have pointed out the major tenets shared by Peirce and Whitehead. Some of the points mentioned will be further investigated as I will analyze Peirce's and Whitehead's theories of novelty in detail. However, the features of "classic American philosophy," as well as the relationship with science and

[61] This prominence of the concept of relation goes indeed together with the "principle of process." As Paci has illustrated, according to Whitehead "Every proposition does not enunciates an identity, but a relation. In doing so, the proposition expresses a process because it is only in a process that a relation does not become an identity" (Paci 1964b, 68, translation mine).

mathematics, and the five shared philosophical tenets listed above, considered together constitute the ground for a comparison of Peirce's and Whitehead's philosophies. More specifically, the topic of novelty is first and foremost pivotal in relation to last point mentioned – that of '*creativity*' – but one can already notice how novelty is indeed entailed by almost every characteristic pointed out.

After this general framework, through which we have already made some divergences emerge, how to develop their comparison on the theme of novelty? The way I intend to carry the investigation out, and so its intrinsic articulation, will be delineated in the next chapter, together with the outline of the present state of the art. The latter is indeed essential in order to put the present research in context by connecting it to other works that scholars of both Peirce and Whitehead have done so far.

Chapter 3

State of the Art and Map of Dissertation

1. State of the Art

Given the vastness and variety of works on both Peirce and Whitehead, and the scarcity of comparative studies, I will focus on those that compare the two philosophers. Those are at the same time the works that paved the way for the present investigation.

It is possible to divide the secondary literature on Peirce's and Whitehead's comparison into three groups, according to different degrees of generality. Group 1 refers to general accounts of either American philosophy, or process thought, where both the authors are included and often, approximately, associated. Group 2 concerns general overviews of Peirce and Whitehead's philosophies. Group 3 concerns those essays dealing with specific resemblances (or differences) of their philosophies. This last group also comprises the dissertations written on Peirce and Whitehead, or at least those dissertations which are traceable through libraries' catalogues or web sources and databases.

Beginning with Group 1, there are a few general introductions to American philosophies where both the thoughts of Peirce and Whitehead are expounded and their affinity underlined. Whitehead's presence in those kinds of general accounts should not be taken for granted, since he is frequently seen just as a British mathematician and logician. The prime examples of such books are John Smith's *America's Philosophical Vision* (1992), Bruce Kuklick's *A History of Philosophy in America* (2001) and – especially – Max Fisch's *Classic American Philosophers: Peirce, James, Royce, Santayana, Dewey, Whitehead* (1951), where one can probably find the best outline of classic American Philosophy's tenets, briefly reported here (Ch. 1, § 2.1). Good insights into American philosophy, including Peirce and Whitehead, are also provided by Charles Hartshorne's *Creativity in American Philosophy* (1984) and Bertrand Helm's *Time and Reality in American Philosophy* (1985), which emphasizes the original

contribution Peirce and Whitehead, as well as other American philosophers, made regarding these issues. At the same level of generality, we can include the books about pragmatism or process philosophy, even though it is easier to find Peirce in accounts of process philosophy than Whitehead in books on pragmatism. On pragmatism's account, there is Charles Morris's *The Pragmatic Movement in American Philosophy* (1970), in between pragmatism and process philosophy is Guy Debrock's *Process Pragmatism: Essays on a Quiet Philosophical Revolution* (2003), and on process philosophy see especially Douglas Browning's *Philosophers of Process* (1965) and Nicholas Rescher's *Process Philosophy: A Survey of Basic Issues* (2000). Also of note (though more closely bound to a process philosophy perspective) is David Ray Griffin's *Founders of Constructive Postmodern Philosophy: Peirce, James, Bergson, Whitehead, and Hartshorne* (1993), where those thinkers are put together for opening up a new possibility of doing philosophy, different from the intents of deconstructionism, traditional metaphysics and analytic philosophy alike.

Group 2 is constituted by the articles of Victor Lowe, Jaime Nubiola and James Bradley, already cited in the previous sections. The first article, "Peirce and Whitehead as Metaphysicians" (Lowe 1964) is written by one of the principal Whitehead scholars, as well as his biographer: Victor Lowe. It provides an overview of Peirce and Whitehead's methods and metaphysics. It primarily aims at differentiating Peirce and Whitehead's philosophies, by stressing the "outstanding differences of methods" (Lowe 1964: 430). In so doing, the author casts light on some resemblances (e.g., the relevance of the concept of relation, of importance of experience, their "similar rationalism" etc.) and insists on profound differences (e.g., different approaches to logic and mathematics and divergent connections between metaphysics and experience). On the whole, according to Lowe the indicated resemblances are quite accidental, whereas the differences stand for a radical incompatibility. On the contrary, I think that Lowe's purpose in the article is chiefly to maintain Whitehead's originality and superiority over Peirce's metaphysics. As a consequence, he sometimes oversimplifies Peirce's position to make Whitehead's appear stronger, and – overall – he misconstrued some affinities, as well as divergences. For instance, as I illustrated in Ch. 2, § 2.2, Whitehead's relation to mathematics is more complex than the one Lowe describes. From the very beginning he is so focused on maintaining that the authors are different (and to be sure their

theories *are* different), that he sometimes overlooks some remarkable similarities, or – generally speaking – does not give sufficient weight to them, for the sake of overemphasizing subtle differences.

The second essay, titled "Peirce and Whitehead", written by Jaime Nubiola in 2008, addresses their comparison and presents in a very detailed and clear-cut way the historical side of the matter and gives a comprehensive examination of the themes analyzed by scholars beforehand,[1] stressing particularly upon the salience of their speculative thoughts. James Bradley's essay, titled "Transformations in Speculative Philosophy" (2003/2012), focuses upon their contributions to speculative philosophy. It takes into account on the one hand Bergson's and Heidegger's philosophies, and on the other hand Peirce's and Whitehead's (cf. in particular Bradley 2003/2012, 444-448). Starting from the concepts of 'existence' and 'series,' he indicated how this group of four authors changed the method of doing speculative philosophy. In particular, concerning Peirce and Whitehead he deemed their common originality as lying in elaborating "speculative serial theories" and insisting on "the rationality of actualization and of freedom" (Bradley 2003/2012, 444). According to Bradley they provided new comprehensive serial theories, while at the same time emphasizing the role of subjectivity, which is not conceived as a mere effect of a system but more as its constituent. Besides, both Nubiola and Bradley provided room for the differences between Peirce and Whitehead, which lie, at a higher degree of particularity, in their different articulations of theories as well as of methods, as we will see in a while.

Group 3 compares Peirce and Whitehead on specific topics. Apart from dissertations, the first article dedicates to one aspect of Peirce's and Whitehead's philosophies is William Reese's "Philosophical Realism: A Study in the Modality of Being in Peirce and Whitehead" (1952). As the title suggests, the article concerns the issue of realism, and special attention is paid to the concept of possibility, to which is attributed the status of "reality." Indeed, both philosophies mark the distinction between the actual and the possible, but the concept of reality embraces both of them. Actuality and possibility are in fact qualified as two modalities of being. Moreover, in this regard

[1] For instance, he took into consideration Lowe, Bradley and the ones we will see in Group 3.

Reese demonstrated how it is possible to interpret Whitehead's and Peirce's categories at once. (cf. Reese 1952, 225-226).

Then we find John Kultgen's "The 'Future Metaphysics' of Peirce and Whitehead." It was published in 1960 in *Kant-Studien* and it explored Peirce's and Whitehead's general philosophical views, insofar as they are opposite to Kant's viewpoint. On the whole, Kultgen underlined five points of radical divergence from Kant. They are:

> 1. The denial of even a problematic distinction of noumena from phenomena.
>
> 2. The denial of an unbridgeable distinction between objects of theoretical and practical thought.
>
> 3. The claim that metaphysical thought originates in the interpretation of experience as controlled by a dialectic with further empirical thought; and the claim that, therefore, metaphysics is an ideal of empirical enquiry.
>
> 4. The claim that, were metaphysics to attain ideal perfection, its terms could be defined univocally and its principles would apply to every concrete object whatsoever.
>
> 5. The conclusion and assumption that metaphysical thinking is an observable phenomenon, and that it and its methods can be exhibited as an instance of the adequate metaphysical scheme (Kultgen 1960, 288).

As I have already demonstrated (cf. § 2.3), I do not agree with Kultgen on characteristic 3 because Peirce and Whitehead's views of metaphysics are indeed different in this regard and, despite the fact that their philosophies start from experience, they cannot be however be construed as "empirical enquiries."[2] For the rest, the merit of the article lies in the method adopted and its fruitfulness, that is, by opposing their views to a well articulated system such as Kant's, Kultgen succeeded in pinpointing the fundamental postulates of both Peirce and Whitehead's thoughts.

[2] Also, point 5 should be at least reformulated, since it retains an ambiguity. Indeed, it is not clear whether the author thinks that "metaphysics" *is* "an observable phenomenon" or rather that metaphysics has "observables phenomena" as its own objects of investigation. The latter would probably be more appropriate.

Then, Charles Hartshorne confronted in "A Revision of Peirce's Categories" (1983) Peirce's categories with Whitehead's and tried to show that Peirce's *Firstness* is almost equivalent to Whitehead's *eternal objects*, *Secondness* to *prehensions* (or feelings of feelings) and *Thirdness* to *symbolic reference* (Hartshorne 1983, 82-85). Nevertheless, the confrontation is quite rough. On the one hand, it seems to be an interpretation of Peirce's Categories in terms of Whitehead's one, on the other it sounds more like a juxtaposition, with the result that it is not easy to take a stand on it.

There has been a very interesting attempt to deepen into Peirce and Whitehead's philosophies in the discussion between Sandra Rosenthal and Lewis S. Ford in 1996-1997, published in the *Transactions of the Charles Sanders Peirce Society*, recently referred to by Chris Van Haeften (cf. Van Haeften 2001).[3] The first article, Rosenthal's "Continuity, Contingency, and Time: The Divergent Intuitions of Whitehead and Pragmatism" (1996), illustrates from a metaphysical point of view the divergences of Whitehead and Pragmatism (Peirce in particular) on "the nature time, […] inextricably intertwined with diverse perceptions of the nature and interrelation of continuity, discreteness and contingency" (Rosenthal 1996, 542). According to Rosenthal, Whitehead conceives of time as discrete, since his "actual entities" are seen as "temporal/ontological atoms as discrete as building blocks of time" (Rosenthal 1996, 552). In opposition to this, we see that in Pragmatism's account what is primary is continuity. As a consequence, she pointed out that for Whitehead the past is fixed, whereas for Peirce and pragmatism the process is always in flux and nothing is determined. Every discreteness is merely a "functional dimension of a continuous process" (Rosenthal 1996, 558).[4] On the contrary, in "On Epochal Becoming: Rosenthal on Whitehead" (1997) Ford argues against Rosenthal's account of actual entities, claiming that it goes against the thesis according to which "Whitehead teaches that time

[3] Without any comparison, in this paper Van Haeften tried to show that there are no reasons in Whitehead's philosophy to play continuity off of discontinuity, as Rosenthal did.

[4] The main thesis of Rosenthal can be understood as follows: "For Whiteheadian process, the irreversibility of time is tied to the succession of ontological/temporal atoms and the absolute fixity of the past to which they give rise. The duration or process in which these occasions become is a-temporal precisely because it is a continuous process which houses no succession of atomic units. For pragmatic process, time itself is a continuous spreading out in which quasi-discretes, which are themselves continuous processes, emerge in the passing present through the interaction of dynamic tendencies constitutive of the ongoing temporal/ontological advance" (Rosenthal 1996, 561). I will discuss her thesis in detail in Part III of the present dissertation.

is generated out of that which has no temporal character of its own" (Ford 1997, 978), but basically the problem of how a series of "acts of becoming" (namely, actual entities) can produce continuity remains. I will delve into this debate while analyzing Whitehead's metaphysical view of novelty, in Part III, Ch. 3. Also, a volume entitled *Experience and Reality* is forthcoming. Its concerns Whitehead and Pragmatism, and two chapters are explicitly on Peirce and Whitehead. The first is on the topic of *eros* and *agape*, by Brian G. Henning, while the second is my own essay on Peirce's Secondness and Whitehead's event.

Lastly, there are four dissertations written on Peirce and Whitehead. The first is Frances Murphy's *The Place of Moral Responsibility in the Philosophies of Whitehead and Peirce* (1940); the second is Thomas Green's *The Idea of Novelty in Peirce and Whitehead* (1968); the third is Peter Limper's *Value and the Individual in the Philosophies of Whitehead and Peirce* (1975) and the last is Scott Sinclair's *The Conception and Attributes of God; A Comparison of Charles Sanders Peirce and Alfred North Whitehead* (2007). As it is apparent, whereas Murphy's, Limper's and Sinclair's works are tangential to the topic of the present dissertation, Green's one requires special consideration. At first glance it seems that it is about the same issue I am dealing with. However, the differences are so relevant as to make his work and the present one distinct and independent of one another. This is not only because the passing of time has certainly increased the possibility of reaching a deeper and clearer comprehension, but it has also provided the availability of further sources that – like Peirce's manuscripts – brought about some changes in the general reception and understanding of Peirce's philosophy. The differences involve perspective, methodology and even contents. First of all, as Green puts it in the foreword, his dissertation "was originally to be titled 'The Meaning and Explanation of Novelty in the Evolutionary Philosophies of Peirce and Whitehead'" (Green 1968, ii), but then he opted for "The Idea of Novelty" since the previous title "proved too unwieldy for a single title page" (Green 1968, ii). In other words, his dissertation is limited to the problem of novelty inasmuch as it is connected to their "evolutionary philosophies," that is to their philosophies viewed as "evolutionary philosophies." In contrast with that approach, the present dissertation starts from the problem of novelty itself. Besides, it conceives of Peirce's and Whitehead's cosmologies as a part of their philosophies. Accordingly, I pose the

problem of novelty first and foremost from a phenomenological/experiential point of view, because both authors start from this level of investigation in their philosophical efforts. Then, the dissertation follows how the problem of novelty rises with regard to the gnoseological and cosmological branches.

More precisely, we can say that the focus of Green's entire dissertation is on evolution, which is the main topic he tackled. The author developed their cosmologies according to evolution, and then showed how in developing such evolutionary theories Peirce and Whitehead find a place for novelty. Moreover, Green himself tells how he approached this dissertation in seeking an explanation about the climate of thought that he found himself in, which was dominated by Teilhard de Chardin, another thinker often considered among the process philosophers. Therefore, novelty comes indeed as a result of an investigation of evolutionary thought. Green explains:

> When I commenced work on this dissertation, I was moved by an interest in evolution whetted by the recent popularity of Teilhard de Chardin and by the profound impact of the idea of development on our contemporary understanding of Christian life and doctrine […] the popularization of Teilhard led me to explore some of the older writings which have conditioned our current climate of thought (Green 1968, 228).

On this account then, Green comes to novelty as a characteristic of what he called Peirce's and Whitehead's evolutionary philosophies.[5] Contrarily, the present work focuses directly on the problem of novelty, especially after attention has been paid to the topic in the 20th Century (cf. Ch. 1, §§ 2, 3) and investigates it throughout Peirce's and Whitehead's whole thoughts.

2. Plan of Work

For the sake of clarity, and to avoid reducing Peirce's thought to Whitehead's or vice-versa, I decided to articulate the dissertation following both a historical perspective and theoretical criteria. Accordingly, I will first analyze Peirce's account of novelty by

[5] This label of "evolutionary philosophy" is indeed quite debated, and not taken for granted at all, especially among Whitehead scholars. Cf. Lucas 1985.

dividing the analysis into three parts (phenomenological, gnoseological, cosmological), then I will show how the topic was received by Whitehead, with special reference to William James's and Henri Bergson's contribution to the matter, and, after that, I will analyze Whitehead's view of novelty following the same criteria adopted for Peirce. Thus, the dissertation will be divided into the parts outlined below:

Part I, *The Problem of Novelty Between Peirce and Whitehead*, is constituted by this chapter and the previous one, which are introductory to the whole work.

Part II, *Peirce's Account of Novelty*, is about Peirce. It is divided into three chapters: the first one on Peirce's phenomenological account of novelty; the second one on the place of novelty in his gnoseology, with special attention to abduction; the third one on his cosmological account of novelty.

Part III, *Whitehead's Account of Novelty*, is devoted to Whitehead's description of novelty. It divides into three chapters as well: the first phenomenological, the second gnoseological, and the third cosmological, as in Peirce's case.

Finally, the last chapter is entitled *Conclusion*. As a conclusion, the analyses carried out in the previous chapters will be compared, in accordance with the different theoretical perspectives followed in the entire dissertation. Also, I will illustrate what is Peirce and Whitehead's contribution to the problem of novelty.

3. Methodology

As I anticipated in the general outline, to reach a clear and exhaustive account of novelty, I will divide the analysis of Peirce's and Whitehead's thoughts according to three different perspectives: phenomenological, gnoseological, and cosmological. Indeed, these distinct methods of inquiry, far from being the criteria according to which Peirce arranged his various classifications of the sciences, can be easily pinpointed in his philosophy (as well as in Whitehead's), and allow us to understand to what extent we can actually speak of novelty with regard to (i) experience, (ii) knowledge, and the (iii) structure of the universe. By distinguishing those fields of investigation, we will reach a more precise comprehension of novelty and its meaning.

Phenomenology, gnoseology and cosmology bring us back to a distinction quite common throughout the history of philosophy – especially in modern philosophy – and therefore allow us to approach Peirce and Whitehead's from a perspective broader than their own. Accordingly, by analyzing both Peirce's and Whitehead's philosophies through those perspectives, I hope to pave the way for new comparisons between them and other philosophers, and to endorse a philosophical dialogue between their philosophies and other recent and contemporary philosophical viewpoints. In fact, both Peirce and Whitehead have always been viewed as authors of profound intelligence, but – due to their philosophies' complexity and technical nature – their thoughts have been often dismissed or confined to their own scholarships.

As a consequence, the present dissertation follows a mainly thematic order. For each part, the first chapter concerns only novelty from a phenomenological perspective, which deals with questions like: Can we experience something genuinely new? Does a *new* phenomenon exist? What does it mean? Is novelty a character of *some* phenomena or of each of them?

The second chapter focuses on novelty from a gnoseological perspective, which addresses problems like: Is it possible to know something new? Can we really have "creative" thinking? How do we come to new ideas, if we actually come to them?

The third chapter considers novelty from a cosmological perspective, which faces issues like: Can we speak of novelty and new entities? How is it possible for something new to appear? Does the evolution of the universe allow for novelty, or is it to be considered a mere continuation and development of preexisting elements and patterns?

Additionally, in order to distinguish Peirce's and Whitehead's philosophies and provide a thorough comprehension of them, in every chapter the specific discourse on novelty is preceded by the description of what one can consider as "phenomenology," "gnoseology," and "cosmology," according to Peirce (in Part II), and to Whitehead (in Part III).

PART II

PEIRCE'S ACCOUNT OF NOVELTY

1. Peirce's Classification of the Sciences

Peirce was one of the most prominent contributors in elaborating a classification of the sciences between 19th and 20th centuries. Between 1889 and 1903, numerous versions of classifications can be found in his writings, with slightly different characteristics (cf. Part I, Ch. 2, § 2.3). Because the analysis we are undertaking is multi-layered, it is certainly helpful to touch upon his general classification, or 'architectonic', before moving to the analysis of specific branches. Peirce's architectonic represents a possibility of becoming aware of the general context and the relations among the disciplines we are going to take into consideration. Also, the classification of the sciences is useful insofar as it can guide us like a map in exploring new territory:[1] we can better understand what we are discovering, and "stick pins into it" (Peirce 1906, 492) as we proceed in our path.

In the classification of the sciences, Peirce's attempts aim at including every science, in its broadest sense. The most general division is among 1) Sciences of Discovery, 2) Sciences of Review, and 3) Practical Sciences. As Liszka noted, with 'Practical Sciences' Peirce refers to what we would call "applied sciences" (Liszka 1996, 3), such as engineering, medicine, but also "surveying, navigation, telegraphy, printing, bookbinding" (CP: 1.243), etc. The Sciences of Review lie between the theoretical and the practical ones. They concern "the business of those who occupy themselves with arranging the results of discovery, beginning with digests and going on to endeavor to form a philosophy of science" (EP2: 258-259).[2] According to Peirce also "the classification of the sciences belongs to this department" (EP2: 259). Finally, the Sciences of Discovery are either (i) Mathematics, or (ii) Philosophy, or (iii) Idioscopy (or Special Sciences).They receive a more accurate description by Peirce. He states:

> Mathematics studies what is and what is not logically possible, without making itself responsible for its actual existence. Philosophy is *positive science*, in the sense of discovering what really is true; but it limits itself to so much of truth as

[1] This analogy explicitly recalls Peirce's description of an "eminent and glorious general" in need of a map during a military campaign. Concisely, Peirce used it to explain the relevance of diagrams for reasoning. Cf. Peirce 1906, 493-94.

[2] For instance, according to Peirce, Humboldt's *Kosmos*, Comte's *Philosophie positive*, and Spencer's *Synthetic Philosophy* represent this type of science.

> can be inferred from common experience. Idioscopy embraces all the special sciences, which are principally occupied with the accumulation of new facts (EP2: 259).

On the whole, in every sketch of the sciences that Peirce drew, he borrowed his classification principle from Comte, as the author plainly states. In accord with this general principle, the sciences are classified "in order of abstractness of their objects, so that each science may largely rest for its principles upon those above it in the scale while drawing its data in part from those below it" (EP2: 35). Referring especially to *An Outline Classification of the Sciences* (cf. EP2: 258-262, 1903), the sciences of discovery can be illustrated by the outline below:

I	**MATHEMATICS**	i. Mathematics of Logic	
		ii. Mathematics of Discrete Series	
		iii. Mathematics of Continua and Pseudo-Continua	
II	**PHILOSOPHY (CENOSCOPY)**	i. Phenomenology (Phaneroscopy)	
		ii. Normative Sciences	a. Esthetics
			b. Ethics
			c. Logic
		iii. Metaphysics	a. General Metaphysics (or Ontology)
			b. Psychial (or Religious) Metaphysics
			c. Physical Metaphysics[3]
III	**SPECIAL SCIENCES (IDIOSCOPY)**	i. Physical Sciences	a. Nomological Physics (or General Physics) *e.g.*, *Dynamics, Electrics..*
			b. Classificatory Physics *e.g.*, *Chemistry, Biology..*
			c. Descriptive Physics *e.g.*, *Geognosy, Astronomy*
		ii. Psychical (or Human) Sciences	a. Nomological Psychics (or Psychology) *e.g.*, *Introspectional, Experimental*
			b. Classificatory Psychics *e.g.*, *Linguistics, Ethnology*
			c. Descriptive Psychics (or History) *e.g.*, *History, Biography*

[3] Cosmology is usually considered under this branch. A more detailed account of the branch of Physical Metaphysics will be offered in Part II, Ch. 3: "Peirce's Cosmological Account of Novelty."

For present purposes, I am going to take into consideration especially *Philosophy*, while leaving special sciences aside. As I already reported, Mathematics studies the realm of possibility, and in this sense can be considered as the most abstract science of all. Furthermore, to interpret Peirce's classification correctly, we should note that for the principle above stated, Mathematics gives to Philosophy its principle, while Philosophy provides Mathematics with contents (cf. Part I, Ch. 2, § 2.3.1).

In like manner the classification intends to present the relationships among the branches of philosophy: metaphysics borrows its principles from normative sciences, and in its turn normative sciences borrow their principles from phenomenology. More specifically, while phenomenology – as Peirce clarifies – is a "single study" (EP2: 260), both normative sciences and metaphysics are further subdivided. Normative sciences are divided into: esthetics, ethics and logic, the latter borrowing its principle from the second, and the second borrowing its from the first. Metaphysics is divided into: general metaphysics, psychical metaphysics – chiefly concerned with the problem of God, freedom and immortality – and physical metaphysics, which discusses the real nature of time, space, matter, laws of nature, etc. (cf. EP2: 260). Referring to the outline just displayed, the next three chapters will investigate the three branches of philosophy. In particular: the first chapter will address the first branch, that is *phenomenology*, the second chapter will discuss the third branch of normative science, *logic*,[4] and the third chapter a part of the third branch of metaphysics: cosmology.

[4] Up to now I have always referred to the second perspective as gnoseological and I do maintain that the second point of view is that of *gnoseology*. The word 'Gnoseology' comes from the same Greek root of *γιγνώσκω* – meaning "to know" – and the suffix "logical" from *λόγος*. It differs from "epistemology" (from the Greek *επιστήμη* and *λόγος*) since epistemology originally signifies that discipline which studies the rules and methods of scientific knowledge, while gnoseology refers to knowledge in a broader sense: gnoseology aims indeed at finding the very general rules of every kind of knowledge, from the daily life's one up to those of natural sciences. In this case, among the sciences Peirce deals with, logic certainly is the most appropriate because gnoseology implies logic as its method and rules.

Chapter 1

Peirce's Phenomenological Account of Novelty

To explain Peirce's phenomenological account of novelty, it is first necessary to introduce what Peirce means by 'phenomenology', especially because under this label we usually indicate that train of thought born at the beginning of 20th century with Husserl's philosophy and then spread out across Europe and beyond, to the extent that so many different thinkers have been acknowledged as phenomenologists. In this regard, we could include Martin Heidegger, Edith Stein, Maurice Merleau-Ponty, Jean Paul Sartre, Jan Patočka, Hannah Arendt, Aexander Pfänder, Max Scheler, but also Emmanuel Lévinas, Michel Henry and Jean-Luc Marion among others.[1]

For Peirce's 'phenomenology' is a part of his mature philosophy. Indeed, not earlier than 1902, while working out his architectonic, he came to 'phenomenology', and pointed to it as a new science.[2] He calls it also 'phaneroscopy' (from the Greek φανερόν, *phaneron*: manifest, evident) to avoid it being mixed up with Hegel's phenomenology and its characteristic features. As Short puts it: "This was the moment

[1] On the relationships between Peirce and Husserl cf. Spiegelberg 1956, Ransdell 1989, and Luisi forthcoming. In particular, Ransdell clarifies Peirce's difference from Husserl. He states: "The important question is, what does he [Peirce] do there? Does he perform a "reduction?" No, I don't think there is anything in what he does which could fairly be called a "reduction." I am assuming that a reduction is supposed to be some sort of special act of withdrawal of belief or suspension of judgment, and Peirce doesn't do anything like that. In fact, he would regard talk of doing such a thing as mere talk, just as he regards Descartes' supposed methodic doubt as mere talk: "paper doubt," as he puts it. In any case, taking the phenomenological stance here is quite simple also: you just put no restrictions on what you are concerned with. What is phenomenology about? Anything. You name it or point it out or mark it off or identify it in any other way and phenomenology is about it. In brief, what Peirce does is to start from the idea of an experienceable entity of any sort whatever – anything knowable, intelligible, perceptible, memorable, understandable, learnable about, etc. – and he infers that any such entity necessarily possesses three distinct types of properties regardless of whether or not we can locate it in the space-time order we commonsensically identify as "the real world." It can be something merely dreamed, imagined, conceived, envisioned, hallucinated, or of which we are aware in any other way, provided it is referable to and describable in principle" (Ransdell 1989, 23-24).

[2] To understand how Peirce's idea of phenomenology developed between 1868 and 1902, see in particular Ransdell 1989; Hausman 1993, 94-116; Short 2007, 60-71.

of a reordering and reconception of his philosophical enterprise" (Short 2007, 60). The borders of Peirce's own philosophy were re-designed because, as the classification has already shown, phenomenology became "the initial department of philosophy" (EP2: 147, 3). But why is phenomenology the initial department of philosophy? What is Peirce's phenomenology, and how to understand it if it is different from Husserl's and Hegel's ones? What is phenomenology's aim, method and proper object?

1. Peirce's Phenomenology: Main Characteristics

1.1. The Method of Peirce's Phenomenology

Peirce describes 'phenomenology' as the "initial great department of philosophy," in all likelihood because according to him "to make the ultimate analysis of all experiences [is] the first task to which philosophy has to apply itself" (CP: 1.280). Phenomenology properly investigates the field of experience, but what does Peirce mean by 'phenomenology' and 'experience'? Indeed, his conception of them is really different from what we usually think. Peirce says phenomenology "just contemplates phenomena as they are, simply opens its eyes and describes what it sees [that is to say] simply describing the object, as phenomenon, and stating what it finds in all phenomena alike" (EP2: 143, 1903). From this definition one might construe phenomenology just as a vague and odd science which needs merely observation and description to be accomplished, but this is not so.

Instead, Peirce provides phenomenology with a proper method that requires three faculties:

(i) The first faculty is what in the previous citation has been indicated as *contemplation*. As it is stated, applying the phenomenological method we need first to "simply open our eyes and describe what we see," but this is not what we usually do: the difference between description and interpretation is indeed very slight. For this reason Peirce puts emphasis on the apparently trivial capacity of seeing. He describes it as the "first and foremost faculty" we need for this work; it is a "rare faculty, the faculty of seeing what stares one in the face, just as it presents itself, unreplaced by any interpretation, unsophisticated by any allowance for this or for that supposed modifying circumstance" (EP2: 147, 1903). But why is this so rare? And what is the difference

from our common way of looking at phenomena around us? Peirce explains this rare faculty by recurring to the figure of the artist. The faculty of observation is in fact "the faculty of the artist who sees for example the apparent colours of nature as they appear" (EP2: 147). In this regard, he offers a very simple but insightful example to grasp the point he is making:

> When the ground is covered by snow on which the sun shines brightly except where shadows fall, if you ask any ordinary man what its color appears to be, he will tell you white, pure white, whiter in the sunlight, a little greyish in the shadow. But that is not what is before his eyes that he is describing; it is his theory of what *ought* to be seen, the artist will tell him that the shadows are not grey but a dull blue and that the snow in the sunshine is of a rich yellow. The artist's observational power is what is most wanted in the study of phenomenology (EP2: 147).

In this way, the first faculty required by phenomenology is *merely* observation, but the kind of unbiased observation is such that we need somehow to be trained in it.

Moreover, the element of observation is so prominent in this branch of philosophy that *phaneroscopy* – the term Peirce chose as alternative to *phenomenology* – also emphasizes it. Why? As mentioned, *phaneroscopy* comes from the Greek word *phaneron*, meaning manifest, evident, and '*–scopy*' meaning to see. In this way, instead of *phenomenology*, which is composed with the suffix '–logy' (from *logos*), *phaneroscopy*, by means of the suffix '*–scopy*' introduces, as De Tienne showed: "the idea of observation, while the suffix *–logy* introduces the idea of discourse, a corpus of systematized argument" (De Tienne 2004, 20). In this sense Peirce often remarks how phaneroscopy "does not undertake, but sedulously avoids, hypothetical explanation of any sort. It simply scrutinizes the direct appearances. […] The student's great effort is […] to confine himself to honest, single-minded observation of the appearances" (CP: 1.287, 1905).

(ii) The second faculty required is discrimination and detection. As the author suggests: "the second faculty we must strive to arm ourselves with is a resolute discrimination which fastens itself like a bulldog upon the particular feature that we are studying, follows it wherever it may lurk, and detects it beneath all its disguises" (EP2: 147), while (iii) the third faculty consists in generalization. More specifically, Peirce refers to "the generalizing power of the mathematician who produces the abstract

formula that comprehends the very essence of the feature under examination purified from all admixture of extraneous and irrelevant accompaniments" (EP2: 147-48).[3]

Therefore, on the whole we can sum up the method of phenomenology as follows: observation, discrimination and generalization.[4] This is what a phenomenologist should

[3] This citation needs some further explanation since it calls into question an essential and complex point: the relationship between mathematics and phenomenology. We can roughly analyze the topic according to three degrees of generality, starting from the most general. (i) The first and broadest degree pertains to Peirce's architectonic: as we have already indicated, phenomenology borrows its principles from mathematics. (ii) The second degree is related to the very nature and possibility of phenomenology, that is, how it is possible to conceive of phenomenology as a merely observational science. In this regard, it is useful to recall the fact that Peirce presents phenomenology, in the first Harvard Lecture of 1903, as the "most primal of all the positive sciences. […]," saying that it does not "seek for *positive* knowledge, that is for such knowledge as may conveniently be expressed in a *categorical proposition*" (EP2: 144, 1903). But how is it possible to devise a science that does not "declare that something is positively or categorically true?" How should it come to some results? Peirce himself raises this issue, replying that "it is not only possible to conceive of such a science, but that such science exists and flourishes, and phenomenology, which does not depend upon any other *positive science*, nevertheless must, if it is to be properly grounded, be made to depend upon the Conditional or Hypothetical Science of *Pure Mathematics*, whose only aim is to discover not how things actually are, but how they might be supposed to be" (EP2: 144). That means that phenomenology, apart from borrowing the phenomenological principles from mathematics, in that it does not aim at a "knowledge as may conveniently be expressed in a *categorical propositions*," must resort to mathematics to accomplish its task. (iii) The third degree of generality is the one evoked by the citation above. The third faculty is the faculty of generalization. But what kind of generalization is it, if it is not assertive at all? As De Tienne has shown, "these operations can only be conducted through the medium of a diagram. This is exceedingly important, as far as phaneroscopy is concerned. Observing a phaneron is not a matter of introspection. It needs to be projected, as it were, in a form that is least likely to disrupt or betray it" (De Tienne 2004: 19). But why are diagrams so important for a phenomenological account? The author clearly states the reasons. He affirms: "There are countless Objects of consciousness that word cannot express; such as the feelings a symphony inspires or that which is in the soul of a furiously angry man in presence of his enemy. But all these can perfectly be expressed in Graphs…And therefore there can be no better instrument for thinking about the Constituents of the Phaneron – which is itself too evanescent for definite comprehension – than to think about Existential Graphs" (MS 499s: 17, 1906). Generally speaking, we can also say that to some extent the problem entailed in all these connections is the very conception of knowledge, or the essential functioning of reason. In other words, Peirce is able to think about such a phenomenology because of the specific concept of reason lying below it. For instance, he explicitly indicates this peculiarity by opposing his philosophy to the classic tradition stemming from Ancient Greek philosophy: "Logic, from *logos*, meaning word and reason, embodies the Greek notion that reasoning cannot be done without language. Reason, from the Latin *ratio*, originally meaning an account, implies that reasoning is an affair of computation, requiring, not words, but some kind of diagram, abacus, or figures. Modern formal logic, especially the logic of relatives, shows the Greek view to be substantially wrong, the Roman view substantially right. Words, though doubtless necessary to developed thought, play but a secondary role in the process; while the diagram, or icon, capable of being manipulated and experimented upon, is all-important. Diagrams have constantly been used in logic, from the time of Aristotle; and no difficult reasoning can be performed without them" (W8: 24, 1890). Consequently, phenomenology can actually observe phenomena and generalize its observations with diagrams, because to some extent they are the most primary and appropriate instruments of reason.

[4] On this point, Atkins has recently emphasized how phenomenology is absolutely analytic, and not synthetic. I agree with him (cf. Atkins 2012b: 7) insofar as the phenomenon is already one, a unity, and we reach categories by means of analyses. However, I think that the problem of synthesis in phenomenology can be solved only by understanding the role of existential graphs, as I tried to demonstrated in the previous footnote.

do in phenomenological research. But *what is the reason why* one should observe, discriminate and generalize, – in the way Peirce intends these activities? And toward *what* should one direct her observations, discriminations and generalizations?

1.2. The Aim of Peirce's Phenomenology

According to Peirce, a phenomenological inquiry detects, describes, and analyses those essential characteristics which belong to every phenomenon. In other words, its aim is to individuate and explain those features that *all* phenomena reveal as the proper and basic ones. In a nutshell, with Peirce's own words, the task of phenomenology

> is to make out what are the elements of appearance that present themselves to us every hour and every minute whether we are pursuing earnest investigations, or are undergoing the strangest vicissitudes of experience, or are dreamily listening to the tales of Scheherazade (EP2: 147).

Accordingly, phenomenology "must be a science that does *not* draw any distinction of good and bad in any sense whatever" and even when we say that it describes what it sees, it does not imply "what it sees in the real as distinguished from figment" (EP2: 143), but simply the phenomena as they appear. For this reason phenomenology "hardly makes any explicit assertions" (NEM4: 196, 1904).

As Peirce recapitulates in *Reason's Conscience* (MS 693):

> What phenomenology does is to distinguish certain very general elements of phenomena, render them distinct, and study their possible modes. It does not need particularly to insist upon their universality, since this is evident to everybody, who knows by his own portion of human experience something of what human experience generally is like. The work of discovery of the phenomenologist, and most difficult work it is, consists in disentangling or drawing out, from human thought, certain threads that run through it, and in showing what marks each has that distinguishes it from every other (NEM4: 196).

Therefore the goal of phenomenology is to discover the "very general elements of phenomena," in the sense of detecting and describing those "characteristics that are never wanting" in them (EP2: 147). In other words, it concerns "the kinds of elements

universally present in the phenomenon" (EP2: 259, 1903). For their ubiquity and generality, those elements are often compared by Peirce to the chemical ones and, as it was for chemistry at the beginning, Peirce is persuaded that, more specifically: "The business of phenomenology is to draw up a catalogue of categories and prove its sufficiency and freedom from redundancies, to make out the characteristics of each category, and to show the relations of each to the others" (EP2: 148). Among these categories Peirce distinguishes two orders, that he calls the particular and the universal, and dedicates his attention only to the universal categories, which are those that "belong to every phenomenon, one being perhaps more prominent in one aspect of that phenomenon than another but all of them belonging to every phenomenon" (EP2: 148).[5]

1.3. The Object of Peirce's Phenomenology: Phenomenon, Phaneron and the Phenomenological Categories

Before focusing on the so-called "Short List of Categories" (EP2: 148), we still need to clarify the object of Peirce's phenomenology. In a sense, as we read in the previous paragraphs, Peirce refers to *phenomenon* and *phaneron* as the object of phenomenology. Notwithstanding, insofar as the aims of phenomenology are now unclosed, it would be more appropriate to say that those ubiquitous characters, or categories, are the proper object of phenomenology. However, in both cases we still need to give some positive characterization of the following concepts: *phenomenon*, *phaneron*, *phenomenological categories*.

With respect to "phenomenon," I have already emphasized how phenomenology takes into account all those phenomena that can happen to anybody at any hour of her life. Also, these phenomena are the ones that everyone can acknowledge: they are not special, in the sense of requiring training, in order to be grasped. But we need to be careful not to reduce phenomenon merely to lived experiences, since Peirce differentiates the way he comprehends phenomena from what we usually refer to by using this word. He states:

[5] In the next paragraphs, I will neither explore nor expand upon the "particular" phenomenological categories, but I will consider how the analysis worked out by Peirce offers an original description of novelty. Nonetheless, in order to throw some light on this distinction, it is worth noting that Peirce specifies that Hegel originally found such a classification. Cf. EP2: 143: "He [Hegel] was also right in holding that these *categories* are of two kinds, the Universal Categories, all of which apply to everything, and the series of categories consisting of phases of evolution."

> I will not restrict it [phenomenology] to the observation and analysis of experience but extend it to describing all the features that are common to whatever is experienced or might conceivably be experienced or become an object of study in any way direct or indirect (EP2: 143).

Therefore the object of phenomenology, a Phenomenon, is not only what we have directly experienced, but anything we may experience, even indirectly, as in the case of an object of study. Accordingly, Peirce's conception of experience is neither an empiricist one nor a narrowly perceptual one, meaning that 'experience' refers only to what we can directly or bodily perceive, that is through our senses. For this reason, Peirce goes so far as to say that a "*phenomenon*, [is] whatever is present at any time to the mind in any way" (EP2: 259, 1903): "whether that phenomenon be something that outward experience forces upon our attention, or whether it be the wildest of dreams, or whether it be the most abstract and general of the conclusion of science" (EP2: 147, 1903).

Peirce's explanations of *phaneron* touch upon this characterization in an even stronger and clearer fashion. The first definition I will report is very close to the one just quoted: in 1904 Peirce wrote that he adopted the word *phaneron* to "denote whatever is throughout its entirety open to assured observation" (MS 337: 7, 1904).[6] As we can observe, the author insists on the fact that a phenomenon/phaneron, is actually "*whatever*" is present to the mind, or – better yet – open to an unquestionable observation.[7] Peirce's conception of phenomenon is so different from the way we usually understand it, that he sometimes groups it together with the concept of 'idea,' as it is used by some English philosophers like Locke.[8] However, due to the psychological

[6] In the same manuscript, Peirce states that he "desire[s] to have the privilege of creating an English word, phaneron," which is "the simplest expression in Greek for manifest […] There can be no question that φανερος means primarily brought to light, open to public expression throughout" (MS 337: 4-5).

[7] In this regard, and also to distinguish Peirce's phenomenology from Husserl's, or Merleau-Ponty's, Rosenthal and Bourgeois's remark is helpful: "Peirce's description of the 'phaneron' is not a description of 'thick' or lived experience of a world of objectivities, but rather is an attempt to work back, as closely as possible within experience, to the level of what is 'there' in the immediate interaction of organism and environment" (Rosenthal and Bourgeois 1980, 77).

[8] Cf. CP: 1.285, 1904: "English philosophers have quite commonly used the word idea in a sense approaching to that which I give to phaneron. But in various ways they have restricted the meaning of it too much to cover my conception (if conception it can be called), besides giving a psychological connotation to their word which I am careful to exclude. The fact that they have the habit of saying that

connotation often covering the concept of idea, Peirce prefers to forge this new word *phaneron* to describe without any ambiguity the subject of this science of phenomenology, which emerged – as he reported – first with Hegel, albeit in a "far too inaccurate" manner (EP2: 267, 1903), and finally more fully developed by Peirce. The vagueness that Peirce attributes on purpose to the definition of phaneron is to be understood in like manner. As he plainly states in *The Basis of Pragmaticism in Phaneroscopy* (1905):

> I propose to use the word *Phaneron* as a proper name to denote the total content of any one consciousness (for any one is substantially any other), the sum of all we have in mind in any way whatever, regardless its cognitive value. This is pretty vague. I intentionally leave it so. I will only point out that I do *not* limit the reference to an instantaneous state of consciousness; for the clause "in any way whatever" takes in memory and all habitual cognition (EP2: 362).

If the meaning of phenomenon and phaneron is evident now, at least to the degree that its vagueness allows, let me now turn to what we have already mention as the proper object of phenomenology, or perhaps the "final objects." As I previously showed, Peirce states that phenomenology aims to "draw up a catalogue of categories," and that he committed himself especially to what he called a "Short List" of universal categories. This short list is composed by Peirce's famous triad of categories. The author indicates them as follows: "Phenomenology contemplates the Universal Phenomenon, and discerns its ubiquitous elements, Firstness, Secondness, and Thirdness, together perhaps with other series of categories" (EP2: 196-97). Yet what are they?

First and foremost, Firstness, Secondness and Thirdness are those *ubiquitous elements* of phenomena. They are those elements that always recur, in every phenomenon alike, and that are discernable and not further divisible in it. I insist on noting this general feature because otherwise it may be easy to either confuse those categories with the logical ones, or to miss their specificity as phenomenological. They

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"there is no such idea" as this or that, in the very same breath in which they definitely describe the phaneron in question, renders their term fatally inapt for my purpose."

are (a) equally real, (b) inter-connected in the phenomenon but (c) unique and irreducible to one another, and (d) present in varying degrees in phenomena.

Since I will consider each category in the next paragraph more carefully, while exploring the issue of novelty, for the moment I will offer just a brief and introductory description of Firstness, Secondness, and Thirdness. For each category, I will (i) "point it out clearly in the phenomenon" by characterizing it, (ii) offer some exemplification of it, (iii) and then "put it before you in the most naked and rational form and show how this describes it in all its protean changes" (EP2: 149).[9]

1.3.1. Firstness

Firstness corresponds to the first character that is noted when anything is present to the mind. It is defined as "something positive and *sui generis*" (CP: 1.25, 1903).[10] Firstness is positive and *sui generis* in the sense that its prominent characteristics are those of presentness and immediacy (cf. EP2: 149). This is because the immediate present is "just what it is regardless of the absent, regardless of past and future. It is such as it is, utterly ignoring anything else" (EP2: 150). Firstness does not involve "any comparison, relation, recognized multiplicity (since parts would be other than the whole), change, imagination of any modification of what is positively there, reflexion." It is "nothing but a simple positive character" (EP2: 150). But what are we referring to? To start comprehending what Firstness means, Peirce pinpoints that "the *quality of feeling* is the true psychical representative of the first category of the immediate as it is in its immediacy, of the present in its direct positive presentness" (EP2: 150, emphasis added).

In light of this, I can now move on to the exemplifications of Firstness. Accordingly, "a Firstness is exemplified in every quality of a total feeling" (CP: 1.531, 1903). For

[9] I am explicitly referring to certain points of the outline that Peirce gave in 1903 during the second Harvard lecture, *On Phenomenology* (EP2: 149).

[10] As Hausman noted, the idea of Firstness was in Peirce's mind even before. He explains: "Although the term originated as a way to call attention to a logically derived first category, as it did in 1894, it became increasingly used with reference to the first category phenomenologically derived. A bridge from logical to phenomenological derivation is, I think, suggested by some of Peirce's discussions of the categories in terms of monads, dyads, and triads, where these are not understood simply as names for kinds of relations. Thus, he proposes that, as monadic, the first category is that element of any phenomenon that gives it its character independently of anything else — that is, independently of any other phenomenon and any other character" (Hausman 1993, 120).

instance, it might be "just an odor, say a smell of attar; or it might be one infinite dead ache; it might be the hearing of a piercing eternal whistle (EP2: 150). More specifically, Peirce wrote to Lady Welby, in 1904, that a Firstness can be:

> The scarlet of your royal liveries, the quality itself, independently of its being perceived or remembered, is an example, by which I do not mean that you are to imagine that you do not perceive or remember it, but that you are to drop out of account that which may be attached to it in perceiving or in remembering, but which does not belong to the quality (CP: 8.329, 1904).

Therefore, given that phenomenology draws out some universal categories from phenomena and after the rough presentation just offered, the most synthetic definition of Firstness is the following one, provided by Peirce in *The Categories Defended* (EP2: 160-178, 1903): "Category the First is the Idea of that which is such as it is regardless of anything else. That is to say, it is *Quality* of Feeling" (EP2: 160).

1.3.2. Secondness

"The second category that I find, the next simplest feature common to all that comes before the mind, is the element of struggle" (CP: 1.322, 1903). Secondness is indeed for Peirce characterized by the element of struggle. In what sense? Peirce invites us to consider even "a rudimentary fragment of experience as a simple feeling" and exhibits how "such a feeling always has a degree of vividness, high or low; and this vividness is a sense of commotion, an action and reaction, between our soul and the stimulus" (CP: 1.322). The character of Secondness entails in this sense a struggle: it points to a specific kind of duality: this is the case of two elements, one in contrast to the other. In other words, it is like a situation of friction or collision. In fact, Peirce clarifies Secondness by also referring to the experience of effort and resistance, which according to him cannot be separated. He states: "The existence of the word *effort* is sufficient proof that people think they have such an idea; and that is enough. The experience of effort cannot exist without the experience of resistance. Effort only is effort by virtue of its being opposed; and no third element enters" (CP: 8.330, 1904). In this regard, Peirce offers a psychological instance in *On Phenomenology*:

> Imagine yourself making a strong muscular effort, say that of pressing with all your might against a half-open door. Obviously, there is a sense of resistance. There could not be effort without an equal resistance any more than there could be a resistance without an equal effort that it resists. Action and reaction are equal. If you find that the door is pushed open in spite of you, you will say that it was the person on the other side that acted and you that resisted, while if you succeed in pushing the door to, you will say that it was you who acted and the other person that resisted. In general, we call the one that succeeds by means of his effort the *agent* and the one that fails the *patient*. But as far as the element of Struggle is concerned, there is no difference between being an agent and being a patient (EP2: 150).

As this episode has illustrated it, Secondness corresponds to a Reaction, not in the sense of a deliberate one, or of an action led by a purpose, but just to this brute fact[11] – this contraposition resulting from effort and resistance at once. For this reason, Peirce associates Secondness to the sense of existence and facticity. To sum up, Peirce offers the following definition of Secondness:

> Category the Second is the Idea of that which is such as it is as being Second to some First, regardless of anything else and in particular regardless of any *law*, although it may conform to a law. That is to say, it is *Reaction* as an element of the Phenomenon (EP2: 160).

1.3.3. Thirdness

According to the author, Thirdness is "a category which only a more refined form of common sense is prepared willingly to allow" (EP2: 155, 1903), and this is probably why, unlike the other categories, Peirce starts describing it not in a positive fashion, but in a negative one, thus indicating Thirdness as that element whose reality is usually refuted or missed, especially in phenomenological contexts. Let us therefore approach Thirdness by tackling certain issues. The passage I will cite is quite long, but very insightful and useful to understand what Thirdness accounts for. Peirce states in *On Phenomenology*:

[11] We will see in § 2.2 how Secondness is indeed associated to facticity and perception.

> The third category of which I come now to speak is precisely that whose reality is denied by nominalism. For although nominalism is not credited with any extraordinarily lofty appreciation of the powers of the human soul, yet it attributes to it a power of originating a kind of ideas the like of which Omnipotence has failed to create as objects, and those general conceptions which men will never cease to consider the glory of the human intellect must, according to any consistent nominalism, be entirely wanting in the mind of Deity. […] But it is not in Nominalism alone that modern thought has attributed to the human mind the miraculous power of originating a category of thought that has no counterpart at all in Heaven or Earth (EP2: 157).

Besides the critics to Nominalism, from this quotation we can apprehend how the main characteristic of Thirdness is to be "the counterpart of the category of thought." But what does it mean that every phenomenon has Thirdness as a very essential character? In other words, how can we think about Thirdness as a phenomenological category? According to Peirce, in this case the problem is that of acknowledging how every phenomenon contains "a tendency to conform to a general rule" (CP: 1.26, 1903). Let us follow Peirce's own exemplification to make sense of this:

> Five minutes of our waking life will hardly pass without our making some kind of prediction; and in the majority of cases these predictions are fulfilled in the event. Yet a prediction is essentially of a general nature, and cannot ever be completely fulfilled (CP: 1.26, 1903).

We can attest to a specific ability to predict, and a tendency to predict correctly, but this is not enough to avoid Nominalism, because Nominalism does maintain this tendency by interpreting it as a capability that reflects a certain divine power accorded to mankind. Instead, according to Peirce the very fact of prediction brings to light an essential and intrinsic structure of phenomena. Indeed, the author illustrates that the fact of prediction is built upon "a decided tendency to be fulfilled, is to say that the future events are in a measure really governed by a law" (CP: 1.26, 1903). This law is not mechanical. For instance, as the author clarifies by means of example:

> If a pair of dice turns up sixes five times running, that is a mere uniformity. The dice might happen fortuitously to turn up sixes a thousand times running. […]

> "Oh," but say the nominalists, "this general rule is nothing but a mere word or couple of words!" I reply, "Nobody ever dreamed of denying that what is general is of the nature of a general sign; but the question is whether future events will conform to it or not. If they will, your adjective 'mere' seems to be ill-placed." […] This mode of being which consists […] in the fact that future facts of Secondness will take on a determinate general character, I call a Thirdness (CP: 1.26, 1903).

In the light of this difference from a nominalist standpoint, we can better grasp why Peirce associates Thirdness to thought. Better yet, he points to thought as what makes Thirdness easier to understand. He states: "Being *in futuro* appears in mental forms, intentions and expectations. […] All our knowledge of the future is obtained through the medium of something else. […] Mediation, is my third category" (CP: 2.86, 1902). The example of Thirdness that he offers in 1894 is fuller and more accessible, even though it is of a psychological character:

> Let us imagine that our now-awakened dreamer, unable to shut out the piercing sound, jumps up and seeks to make his escape by the door, which we will suppose had been blown to with a bang just as the whistle commenced. But the instant our man opens the door let us say the whistle ceases. Much relieved, he thinks he will return to his seat, and so shuts the door, again. No sooner, however, has he done so than the whistle recommences. He asks himself whether the shutting of the door had anything to do with it; and once more opens the mysterious portal. As he opens it, the sound ceases. He is now in a third state of mind: he is *Thinking*. That is, he is aware of learning, or of going through a process by which a phenomenon is found to be governed by a rule, or has a general knowable way of behaving (EP2: 5).

We should note the psychological state of mind described is that of "thinking," but the definition of it is not the one to which that we are accustomed. Namely: he is aware of "going trough a process by which a phenomenon is found to be governed by […] a general knowable way of behaving." This is what the element of Thirdness, phenomenologically, refers to. Similarly, Peirce compares Thirdness to a "formation of habits" (EP2: 269, 1903), where this formation of habits is not intended as a psychological or rational attitude of men's knowledge, but first and foremost as a regularity which develops and becomes, a regularity attested by men's predictions. Therefore, with regards to this phenomenological nature, we can now understand the

synthetic definition the author gives of Thirdness without lapsing into contradiction. He states: "Category the Third is the Idea of that which is such as it is as being a Third, or Medium, between a Second and its First. That is to say, it is *Representation* as an element of the Phenomenon" (EP2: 160). Also, we affirm with Rosensohn that, concerning phenomenology, Thirdness or Representation is that "which gives experience its meaning" (Rosensohn 1974, 91).

2. Novelty and Categories: Is There Any Novelty in Experience?

From the examination of the method, aim and object of Peirce's phenomenology, it follows that Peirce does not explicitly explore the phenomenon of novelty. He confines himself to Firstness, Secondness, and Thirdness and points to them as the universal characteristics which saturate any phenomena whatsoever. Therefore, Peirce never directly dedicates a part of his phenomenology to the 'problem of novelty', or to the study of what a "new" phenomenon is. Nevertheless, the problem of novelty is certainly present in his analyses and somehow pivotal in his phenomenology. How is that possible, since Peirce's phenomenological writings focus only on the three universal categories just introduced?

To see to what extent novelty is central in Peirce phenomenology, we do not need to seek any description of a "new" phenomenon: we would not find anything in this regard. Rather, we need to more carefully consider the analysis of categories themselves, in order to realize how categories *per se* take into account and describe novelty. More specifically, I will not analyze novelty according to the three phenomenological categories. To do this would entail presupposing what novelty is, and then seeing whether the definition of novelty that I previously laid out can find some place in Peirce's phenomenology. The other way around, I will analyze the three phenomenological categories looking for all those elements, if any, that characterize what novelty is according to Peirce. In short, our leading question are: is there novelty in experience? And what is something "phenomenologically new?" Consequently, since the three categories together represent the universal structure of experience, we need to interrogate those categories to see if they allow for novelty or grant its possibility. From this analytic exposition of the categories I will draw Peirce's phenomenological account of novelty.

2.1. Firstness and Novelty

For Firstness, I will start from Peirce's definition above reported: "Category the First is the Idea of that which is such as it is regardless of anything else" (EP2: 160). Going back to an example already mentioned, this means that "The quality of red is not thought of as belonging to you, or as attached to liveries. It is simply a peculiar positive possibility regardless of anything else" (CP: 8.329, 1904).[12] To this extent, Firstness is irreducible and "absolute" (cf. CP: 1.357, 1890), other from you or anything else. What qualifies the first category is precisely not being related to anything else. For this reason one can just *feel* it. Firstness is that present which is "just what it is regardless of the absent, regardless of past and future" (EP2: 150). It is simply a positive character, which you can grasp if you "go out under the blue dome of heaven and look at what is present as it appears to the artist's eye. The poetic mood approaches the state in which the present appears as it is present" (EP2: 149-50). For its present-ness and immediacy, as well as its irreducibility and originality, Firstness represents a pure possibility, not depending on any subject or object. In the light of this absolute independence, we can see Firstness as connected to novelty, but to what extent?

Allow me to focus first on the implications of the general features of Firstness. As Peirce maintains, in order to be present and immediate Firstness "must be fresh and new, for if old it is second to its former state" (CP: 1.357). Moreover, the author keeps on: "It must be initiative, original, spontaneous, and free; otherwise it is second to a determining cause. […]" (CP: 1.357). Therefore, Firstness recalls novelty, even manifests it: to be a Firstness means not to be a second, not compared to anything else. Therefore the primacy of Firstness calls for absolute originality, and thereby it testifies to the reality of something new, insofar as something new can be conceived of as un-derivable, original. With an imaginative example, Peirce stresses this point, comparing Firstness to the present-ness which the first man contemplated at the beginning of times:

> What the world was to Adam on the day he opened his eyes, before he had drawn any distinctions, or had become conscious of his own existence – present,

[12] The author further illustrates this characteristic with the example of *hardness*. He says: "If you ask a mineralogist what hardness is, he will say that it is what one predicates of a body that one cannot scratch with a knife. But a simple person will think of hardness as a simple positive possibility the realization of which causes a body to be like a flint. That idea of hardness is an idea of Firstness" (CP: 8.329, 1904).

> immediate, fresh, new, initiative, original, spontaneous, free, vivid, conscious, and evanescent. Only, remember that every description of it must be false to it (CP: 1.357).

As it becomes apparent in the passage cited, Peirce on the one hand restates the freshness and originality of Firstness. On the other hand, he evinces another element of Firstness's connection to novelty: "every description of Firstness must be false" – the author says – any description, any representation, would betray the essential character of un-relatedness. Moreover, Peirce elaborates this aspect by saying that Firstness "cannot be articulately thought; assert it, and it has already lost its characteristic innocence; for assertion always implies a denial of something else. Stop to think of it, and it has flown!" (CP: 1.357). Accordingly, we can more clearly understand why Firstness is called "quality of feeling," and why it is said to be a category of novelty: it exhibits a complete ignorance, ingenuity, untold-ness, freshness. The same emphasis reappears later in a letter Peirce wrote to Lady Welby (1904), where he further elucidates his phenomenological categories. He affirms: "Notice the naïveté of Firstness. […] The idea of the present instant, which, whether it exists or not, is naturally thought as a point of time in which no thought can take place or any detail be separated, is an idea of Firstness" (CP: 8.329).

To sum up the hints of novelty in the first category: Firstness proves that novelty is real and operating in experience inasmuch as Firstness is characterized by this absolute originality and naïveté. Furthermore, he strongly maintains that Firstness, and its originality and naïveté, are ubiquitous elements of phenomena and not just the results of abstractive processes. The concreteness, reality and primacy of Firstness are unquestionable.[13] According to Peirce, Firstness is indeed the most concrete aspect of

[13] For a detailed account of Firstness's reality see EP2: 186-194, 1903. However, it is relevant not to mix up the reality of Firstness with its phenomenological ubiquity. Its reality concerns its irreducibility to the other categories, while its ubiquity indicates that there are no phenomena where Firstness is not present. Moreover, in this regard, (cf. also Part II, Ch. 1, § 1.3) it is essential to comprehend how to maintaining the ubiquity of Firstness does not imply that this quality is prominent in each of them. It is always present, but in different measure. Indeed, Peirce reveals by means of example how extremely rare it is for occasions of psychological experience to render Firstness in all its clarity and irreducibility. In 1894 Peirce exemplifies the experience of Firstness as follows, "Imagine a person in a dreamy state. Let us suppose he is thinking of nothing but a red color. Not thinking about it, either, that is, not asking nor answering any questions about it, not even saying to himself that it pleases him, but just contemplating it, as his fancy brings it up. Perhaps, when he gets tired of the red, he will change it to some other color, – say a turquoise blue, – or a rose-color – but if he does so, it will be in the play of fancy without any

our experience. For instance, in distinguishing his idea from Hegel's conception of presentness, Peirce specifies that Firstness (originality, etc.) "cannot be abstracted for the abstracted is what the concrete, which gives it whatever being it has, makes it to be" (EP2: 150).

As a temporary conclusion, Firstness itself emphasizes and recalls novelty as originality. It should be noted that Peirce continuously emphasizes that this originality is not a secondary or marginal aspect of Firstness. It is the most representative quality of Firstness, of this immediate present-ness to which Peirce refers. In fact, what do we grasp if we "consider what could appear as being in the present instant were it utterly cut off from past and future" (CP: 2.85, 1902)? See the following passage:

> Nothing is more occult than the absolute present. There plainly could be no action; and without the possibility of action […] there might be a sort of consciousness, or feeling, with no self; and this feeling might have its tone. […] I cannot call it unity; for even unity supposes plurality. *I may call its form Firstness, Orience, or Originality.* Now the world is full of this element of irresponsible, free, Originality. […] We mostly neglect them; but there are cases, as in qualities of feeling, self-consciousness, etc., in which such isolated flashes come to the front. Originality, or Firstness, is another of my Categories (CP: 2.85, 1902).

In this way, Peirce comes to define Firstness as Originality. Or better yet, he defines Originality as Firstness. Correspondingly, it may seem that Firstness is *the* quality of novelty, at least to the extent that novelty is regarded as originality. But other clues for understanding novelty can be equally found by analyzing Secondness.

2.2. Secondness and Novelty

I will start with the definition of Secondness reached in § 1.3.2: Secondness is "*Reaction* as an element of the Phenomenon" (EP2: 160). Also, as previously illustrated, Secondness can be described as *struggle*, or mutual opposition between

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reason and without any compulsion. *This is about as near as may be to a state of mind in which something is present, without compulsion and without reason; it is called Feeling. Except in a half-waking hour, nobody really is in a state of feeling, pure and simple. But whenever we are awake, something is present to the mind, and what is present, without reference to any compulsion or reason, is feeling*" (EP2: 4, 1894, emphasis added).

effort and *resistance*. Thus, so far no element of novelty seems to be compatible with Secondness. Nevertheless, the category of reaction still needs to be explained.

Peirce himself illustrates Secondness by considering the phenomenon of shock and surprise, conceived of as the most exemplary case of Secondness. Furthermore, the author maintains that the worth of experience *per se* consists of these continuous shocks and surprises – it is in fact how we learn through experience.[14] As he says,

> Experience is our only teacher. […]. But precisely how does this action of experience take place? It takes place by a series of surprises. […] At one time a ship is sailing along in the trades over a smooth sea, the navigator having no more positive expectation than that of the usual monotony of such a voyage, – when suddenly she strikes upon a rock (EP2: 153-54).

In this case, that is of surprise or shock, it is easy to discern the simultaneous presence of resistance and effort,[15] "a double consciousness at once of an *ego* and a *non-ego*, acting upon each other" (EP2: 154, 1903). Therefore, if according to the author this mutual opposition "can be detected in all perception" (EP2: 154),[16] it is especially when a surprise/shock takes place that the nature of Secondness is most manifest. But what happens when a surprise occurs? Peirce describes it in detail in the following way:

> Your mind was filled [with] an imaginary object that was expected. At the moment when it was expected the vividness of the representation is exalted, and suddenly, when it should come, something quite different comes instead. I ask you whether at that instant of surprise there is not a double consciousness, on the one hand of an

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[14] This is not to say that experience or phaneron are reduced to Secondness. Rather, the present analysis is confined solely to Secondness. From another point of view, Peirce here describes experience and phenomena just in regard to their Secondness, while his concept of experience is certainly broader than Secondness and reaction. As it will be tackled in § 2.3, Peirce's concept of experience embraces the three categories without reducing any of them to one another. For this reason, he affirms in the cited passage that we learn from experience, even though Secondness *per* se is not intelligible at all, otherwise it would be comprehended by Thirdness. In a more specified sense, it can be said that we learn by virtue of shocks and surprise, where – from a phenomenological analysis – we can distinguish these two elements (*learning* and *shock*) from one another.

[15] Cf. also Cooke 2011, 67.

[16] According to Peirce, percepts, as well as facts and the concept of "existence," chiefly belong to Secondness. See also EP2: 166, 1903. We will better understand why percepts are considered as Secondness in the present section.

> Ego, which is simply the expected idea suddenly broken off, on the other hand of the Non-Ego, which is the strange intruder, in his abrupt entrance (CP: 5.52-53, 1905).[17]

By means of this example, Peirce clarifies the dual character of Secondness: in every surprise a shock occurs, and this shock reveals the opposition between an Ego and a Non-Ego. In this sense, experience teaches us by using surprises. The compulsion of Secondness forces us to alter and adapt our expectation according to it. Second, the phenomenon of surprise or shock entails the coming to be of a surprising or shocking element, that Peirce calls the Non-Ego. The Non-Ego is what objects to and differs from the Ego; it is what comes first.[18] In other words, Secondness testifies to the irruption of a "strange," unforeseen and obstructive element in experience.

We can detect in this interruption another trace of novelty. Secondness recalls novelty because of the "abrupt entrance" of the "strange intruder" which the Non-Ego represents. The happening of the Non-Ego can be precisely compared to the appearance of novelty, in the sense that it entails the coming to be of something unforeseeable and irreducibly other from the First it opposes to. More specifically, is not just the element of Non-Ego that characterizes novelty, but Secondness *per se* as well. In what sense? As it is manifest in the examples of Secondness offered by Peirce, Ego and Non-Ego are such as they are just by virtue of their own opposition. As we cannot reduce Secondness to a *unique* element – that of the Non-Ego – it would be impossible to think about a Non-Ego without an Ego, as it is impossible to think about a resistance apart from any effort. In like manner, it is impossible even to imagine a "surprising element" in itself, without reference to anything else. It is just a brute opposition to something that makes

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[17] MS 283, *The Basis of Pragmaticism* (Basis).

[18] The Struggle of Secondness recalls an argument that Peirce uses in one of his earlier and most famous theses. In *Questions Concerning Certain Faculties Claimed for Man* (1868) he discusses and demonstrates that we have (i) no power of introspection, (ii) no power of intuition, (iii) no power of thinking without signs, and (iv) no conception of the absolutely incognizable. In addressing the second question ("Whether we have an intuitive self-consciousness"), he shows that it is never the case. Consider the following example: "A child hears it said that the stove is hot. But it is not, he says; and, indeed, that central body is not touching it, and only what that touches is hot or cold. But he touches it, and finds the testimony confirmed in a striking way. Thus, he becomes aware of ignorance, and it is necessary to suppose a *self* in which this ignorance can inhere. So testimony gives the first dawning of self-consciousness" (EP1: 20). Thus, with all the differences entailed when a similarity is stated, Secondness represents this moment of opposition from which it is possible to note and clearly establish the first two elements present in each phenomenon.

it “surprising.” Consider the example cited above, concerning a ship colliding with a rock. In that case, what breaks up the expectation of a smooth navigation is the rock. But there is no way to define the rock as “surprising” *per se*. If we go hiking on the mountains we will expect rocks and, contrariwise, in this case the appearance of a smooth sea would be shocking.

As the phenomenon of surprise testifies, Secondness evinces an irreducible difference or dual opposition. This kind of dual opposition, essential to Secondness, allows us to comprehend new features of novelty: its irreducible difference and its “nature” of happening.

(I) *Novelty as Irreducible Difference*. As we have already seen, the compulsive characteristic of Secondness puts emphasis on two elements: the so-called *Ego* and *Non-Ego*, acting upon each other. These two factors, although essentially bound together, are necessarily distinct and – as we can infer also from the previous examples – neither of them is reducible to or comprehensible by the other. On the contrary, their mutual and strong opposition delineates a kind of struggle, as Peirce suggests. Due to this irreducible difference emphasized in the concept of struggle, Peirce says that “the conceptions of existence and fact chiefly belong [to Secondness]” (EP2: 166, 1903). Why? Because in Secondness this irreducible difference carries a sense of externality, “a sense of externality that consists in a sense of powerlessness before the overwhelming force of perception” (CP: 1.334, 1905-06). He declares: “Deceive yourself as you may, you have a direct experience of something reacting against you” (CP: 2.139). Similarly, by means of Secondness we grasp novelty as externality: something new is something that can neither be reduced, nor predicted. It is something compulsive and external, unavoidable. Peirce also calls it ‘hard fact’ – “we are continually bumping up against hard fact” (CP: 1.324, 1903). However, differently from Firstness, in Secondness nothing can be defined as “new” regardless of anything else. Nothing is “new” *per se* and novelty is at no time identifiable with a mere external element. To understand this point, consider a very trivial example. Imagine the launch of the “new iPhone,” which is currently the iPhone 6, which will be presented on September 9, 2014.

Actually, it is "new" just in this moment and just with respect to us, waiting for its launch. It is not at all new for its constructors, nor for Tim Cook, who already knows it, and neither will it be new for those who will read the present dissertation. In fact, it will no longer be new in comparison with the forthcoming iPhone, while still new with respect to the iPhone5 and the previous devices. From yet another perspective, the iPhone5 is still new for my grandmother, who deals exclusively with desk telephones, and it is probably as new as the iPhone6, according to her. Of course, in all these cases there are many components entailed. However, confining ourselves to the issue at stake, it is manifest that in every case something "new" can never be isolated. Everything "new" must be so in comparison with or in opposition to something; it must differ from something else, to which it cannot be reduced. Every time a contrast happens, the more the difference is relevant – that is, the higher the resistance and effort, or the greater the "gap" between the new and the old – the more we can detect that permanent feature which makes novelty perceivable: an irreducible difference. Developing this point, Peirce states with regard to Secondness that "we experience vicissitudes, especially" (CP: 1.336, 1903). Secondness, and novelty to some extents, are always a matter of duality,[19] a duality, such that we are forced to change our position, mentality or expectation.

(II) Moreover, being the universal category of Secondness this irreducible difference, we can dare to say that every perception and fact of existence attests to novelty, though it is more apparent when a shock or surprise takes place. But I will further develop this point at the end of the chapter.

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[19] In other words, Secondness is not to be referred to something definite and punctual as a mere object of perception, but rather it especially concerns changes, differences. Peirce affirms: "the concept of experience is broader than that of perception, and includes much that is not, strictly speaking, an object of perception. It is the compulsion, the absolute constraint upon us to think otherwise than we have been thinking that constitutes experience. Now constraint and compulsion cannot exist without resistance, and resistance is effort opposing change. Therefore there must be an element of effort in experience; and it is this which gives it its peculiar character" (CP: 1.336, 1903). Even though in the cited passage it is hard to establish a clear distinction between Secondness and Thirdness, it is important to recognize how wide experience is according to Peirce, and how Secondness is not confinable to an empiricist concept of perception. Also, this emphasis upon the *experience* of changes of perception allow us to understand how the main feature of Secondness, whether we consider perceptions or experiences (that is, of changes) consists in this *irreducible difference* here described.

For the present, it is sufficient to note how a closer view of Secondness makes us discover novelty as a compulsive externality and otherness, which cannot be conceived as a unique element, but rather representative for an irreducible difference.

(III) *Novelty as Happening*. Along with irreducible difference, I stated above that Secondness makes it evident that the very nature of novelty is to be a happening, a coming to be. To make this clearer, let us consider, again, first how Peirce describes the character of 'happening' in reference to Secondness, and then how this can be regarded as a feature of novelty. The previous analysis of shock and surprise already shows us that not only is Secondness an irreducible difference, but also that you can never foresee it. As I have pointed out above, according to Peirce, one can discern in an instant "a double consciousness, on the one hand of an Ego, which is simply the expected idea suddenly broken off, on the other hand of the Non-Ego, which is the strange intruder, in his abrupt entrance" (CP: 5.52-53, 1905). Thus far we have only explored the first part of the sentence (regarding the struggle), but the second part, and the emphasis put on the "strange intruder, in his abrupt entrance," is as just relevant as the duality already noted. Indeed, the notion of the "intruder" refers to the externality explained in the first part, while the "abrupt entrance" entails the "surprising" character of Secondness: its unpredictability and being as a happening. Secondness is the breaking off of the expectation, it is a sudden alteration, caused by the "overwhelming force of perception" (CP: 1.334, 1905-06). Peirce refers to it with the term "event." He states:

> [A] percept is a single event happening *hic et nunc*. It cannot be generalized without losing its essential character. For it is an actual passage at arms between the non-ego and the ego. A blow is passed, so to say. Generalize the fact that you get hit in the eye, and all that distinguishes the actual fact, the shock, the pain, the inflammation, is gone. It is anti-general. The memory preserves this character, only slightly modified. The actual shock, etc., are no longer there, the quality of the event has associated itself in the mind with similar past experiences. It is a little generalized in the perceptual fact. Still, it is referred to a special and unique

occasion, and the flavor of anti-generality is the predominant one (CP: 2.146, 1902).[20]

> It is therefore possible to refer to Secondness through the concept of "event," which evokes a kind of uniqueness, an individuality, although it is still radically different from that being "regardless of anything else" of Firstness. The characteristic feature of Secondness is that of event, of "happening *hic et nunc*." As a consequence, on the one hand Secondness is always conditioned and situated. As Peirce maintains: an event, or a coming to pass, "cannot be such unless there was a time when it had not come to pass; and so it is not in itself all that it is, but is relative to a previous state" (CP: 1.307, 1905).[21] On the other hand, it is *especially* conditioning. That is, its happening imposes a modification of every previous expectation, unavoidably and with brutal force. In other words, it breaks up with the past and opens new paths, or – better yet – it *compels* one toward new paths. And every time a "hard fact" occurs, its irruptive essence become manifest: the essence of Secondness is that it is always unexpected, even in the case of normal perception. Indeed, according to Peirce, every perception entails a certain degree of shock and surprise. From yet another perspective, each percept involves a certain degree of unpredictability. That externality which we mentioned above is brought to light inasmuch as the struggle of Secondness intrudes, bursts, *happens.* As the author states elsewhere, Secondness always presupposes

> that shock which we experience when anything particularly unexpected forces itself upon our recognition […]. *Low grades of this shock doubtless accompany all unexpected perceptions; and every perception is more or less unexpected*. Its lower grades are, as I opine […] that sense of externality, of the presence of a *non-ego*,

[20] MS 428: *Chapter II. Section II. Why Study Logic?* In this regard, it is remarkable that Peirce often associates the impermeability of Secondness with the problem of individuality. As he briefly puts it: "Individuality is another conception in which Secondness is the more prominent element, although Firstness, of course, is a constituent of it" (EP2: 271, 1903).

[21] MS 298, *Phaneroscopy*.

which accompanies perception generally and helps to distinguish it from dreaming (CP: 1.332, 1905-6, emphasis added). [22]

> As for irreducible difference, this essential nature of Secondness as event, happening or coming to pass, is connotative of novelty. From a phenomenological perspective, novelty not only appears as irreducible difference, but the way it appears is that of happening, or event, in its suddenness and unexpectedness.

To sum up, the relationship between Secondness and novelty is at least as relevant as that of Firstness. In particular, we have seen how the phenomenon of surprise makes Secondness clearer and testifies at the same time to the *existence* of what we can identify with novelty. Surprise and shock tell us what "novelty" is, in reference to Secondness. They reveal novelty as irreducibility and alterity but also as unpredictability, by virtue of its dynamic structure of happening, event.

2.3. Thirdness and Novelty

Compared to Firstness and Secondness, Thirdness has no capacity to offer a more exhaustive comprehension of novelty. Indeed, if we limit ourselves to the structure of Thirdness, it is difficult to find any essential feature that suggests novelty. Broadly speaking, Thirdness is characterized as the exact opposite of novelty. Why? As was illustrated in § 1.3.3, the Third Category expresses "a tendency to conform to a general rule" (CP: 1.26, 1903). Thirdness reveals the fact that every phenomenon contains an element of generality or that it contains a tendency toward generality, which is an inescapable factor of mediation or representation. For this reason, Thirdness is often associated with continuity: a tendency toward generality either implies a continuity, or presupposes a continuity as its basis. Instead, any concept of novelty – whatever one can imagine by it – should be regarded as opposite to Thirdness, otherwise it would lose its own newness. To some extent, the opposition between Thirdness and novelty can be understood if compared to that between Thirdness and Secondness (cf. the analysis presented in § 2.2). According to Peirce, it is fundamental to recognize their presence and to preserve their difference, that is the difference between Secondness (reaction,

[22] MS 299, *Phaneroscopy: on the Natural History of Concepts* (*Phy or Phaneroscopy*).

alterity, irreducibility, individuality) and Thirdness (generality, mediation, representation, law of relationship,[23] continuity). He claims: "To me, who have for forty years considered the matter from every point of view that I could discover, the inadequacy of Secondness to cover all that is in our minds is so evident that I scarce know how to begin to persuade any person of it who is not already convinced of it" (CP: 8.331, 1904).[24] Therefore, with Thirdness the emphasis is put upon the general elements of experience, and their reality.[25] At first sight it seems to offer no keys for understanding novelty. Nevertheless, a correct understanding of the meaning of Thirdness as *generality* allows one to understand, by way of contrast, what novelty *is not*, according to Peirce. This statement is especially relevant if it is referred to the future. Usually, the future is imagined as a dimension of unpredictability, uncertainty, and – in this sense – of novelty. The future is what is going to come, what we cannot anyhow anticipate. As Lorenzo de Medici, an Italian statesman and poet from the 15th century, expressed in famous verses:

Chi vuol esser lieto, sia:	[Who happy would be, let him be;
di doman non v'é certezza.[26]	of tomorrow who can say?]

On the contrary, Peirce's Thirdness, far from reducing the dimension of the future to the present or endorsing a mechanistic view of time, takes the future into account specifically underling its dimension of continuity. Thirdness brings to the surface a component of the future that we hardly admit as existing: the future is continuous with the present; and therefore reveals a regularity that crosses the barriers of time. Indeed, by means of *Thirdness* Peirce emphasizes a continuity throughout all temporal dimensions. Thirdness is a *generality* that embraces all phenomena alike, including the

[23] Cf. CP: 6. 172.

[24] Indeed, the need for Thirdness is not only related to the insufficiency of Secondness. To offer a more exhaustive account, we should consider Firstness as well. As Peirce states in *A Guess at the Riddle*: "First and Second, patient and agent, yes and no, are categories which enable us roughly to describe the facts of experience, and they satisfy the mind for a very long time. But at last they are found inadequate, and the third is the conception which is then called for" (W6: 172, 1887-88).

[25] To note that, according to Peirce, phenomenology does not investigate the reality of phenomena: it is metaphysics that tackles them. However, in his phenomenological writings Peirce does argue for to the reality of categories in many passages.

[26] Lorenzo de' Medici, "Canzona di Bacco", *Canti Carnascialeschi* I, VII.

future ones, but not as "a uniformity of nature, or something of that sort, that is the ultimate fact"[27] (EP2: 69, 1901). Rather, Thirdness points at the presence of an "*esse in futuro*" (EP2: 180, 1903) within phenomena. The most exemplary case of Thirdness, in this regard, is a law of nature, or – to use a more fitting word – what "in the Latin language is simply a 'nature;'" that is a "prognostic generalization of observation" (EP2: 68-69, 1901). A law of nature has "a sort of *esse in futuro*. That is to say [it] will have a present reality which consists in the fact that events *will* happen according to the formulation [of the law]" (EP2: 153, 1903). In other words, future events have a tendency to conform to a general rule. Therefore, by clarifying what Peirce means by "generality" and Thirdness, we see a precise conception of the future emerge. Unlike the common conception of the future as the absolutely uncertain (cf. De Medici's verses above cited), for Peirce the dimension of the future embraces an element of regularity, continuity. Furthermore, according to Peirce, Thirdness is the ground of the concept of the future itself. More plainly, the phenomenological category of Thirdness, that element of Thirdness present in phenomena is what allows us to form an idea of the future. The author claims: "The idea of Futurity, meaning what affirmatively *will* be, is a conception of Thirdness, for it involves the idea of *certainty*, and certainty is *knowledge*, and knowledge is *representation*" (EP2: 271, 1903). Accordingly, Peirce puts emphasis on the Future as the dimension of certainty. Not because the future is certain in the sense of already established. He stresses upon the fact that it is made of *possibility* and *potentiality*. Following Peirce we can distinguish two aspects of the future which are often mixed up: future as pure possibility, e.g. something that *may* be; and future as potentiality, e.g. something that would be, meaning something capable of actualization, being actualized, or of becoming in a determinate way. At first glance, these two modalities – possibility and potentiality – seem to be almost interchangeable. But a specific inquiry focusing on novelty makes their radical difference emerge: possibility carries the idea of novelty as absolute unpredictability and originality, whereas potentiality strongly implies continuity, instead of novelty. Any "potential"

[27] Peirce further explains: "For the only possible logical justification that a theory can have, must be that it furnishes a rational explanation of the relation between the observed facts; while to say that a relation between observations is an 'ultimate fact' is nothing more than another way of saying that it is *not susceptible* of rational explanation" (EP2: 69-70).

always entails its own actualization and thereby it extends itself to the future. In this way Peirce goes so far as to put together "futurity" with "certainty."

Consequently, Peirce's phenomenological elucidation of Thirdness shows us that novelty is not merely "something to come," anything in the future, or anything that will be. This is because at least a part of what we usually call "the future" is not so uncertain and fully open as we imagine it. Thus, the phenomenological presence of Thirdness permits to depict some paths that are opened up into the future, while already delineating it.

3. The Experience of Novelty

After those detailed analyses of the relationship between novelty and each phenomenological category, we can finally give a synthetic and exhaustive account of novelty according to Peirce's own phenomenology. For the purpose of clarity, I will present it by putting forth first (i) the very general contribution Peirce gave to the issue of novelty, and then by describing (ii) his conception of something phenomenologically new.

(i) Regarding Peirce's general contribution, the most remarkable outcome reached so far is probably too subtle as well as too general to be noticed at first glance. To make it emerge, we need to put together the results from the analyses of both Peirce's phenomenology and of the relations between categories and novelty. In other words, we need to intertwine the provisional conclusions of sections 1 and 2 of the present chapter.

As I described, according to Peirce the categories of Firstness, Secondness and Thirdness are the ubiquitous elements of experience: although in different degrees, all three of them are present in every phenomenon at any time. Later on, in the second section, I observed how the structures of Firstness and Secondness strongly imply novelty, and indeed enable us to discover and understand novelty *per se*, since both depict some features of novelty.

Accordingly, because Firstness and Secondness are present in all phenomena alike, and that in both cases their structures point out a character of novelty, we can argue that *for Peirce each phenomenon can be regarded as new*. More plainly, given that Firstness and Secondness express some features of novelty, and given that every phenomenon has Firstness and Secondness as constitutional factors, it follows that every phenomenon

exhibits novelty as an essential feature of it. Far from what we could have imagined at the beginning of the analysis undertaken, according to Peirce every experience embodies novelty as an essential feature, from the most trifling phenomenon to the most shocking one, insofar as every phenomenon comprises traces of Firstness and Secondness. Besides, to say that every phenomenon is "new" does not mean that novelty will be the most prominent feature of whatever one might encounter.[28] Rather, novelty – as was the case of Firstness, Secondness and Thirdness – is a permanent component of every phenomenon: it may be blatant in some cases, or irrelevant in others. Just as the categories are present in all phenomena in different degrees, so is novelty "present" in them all. But allow me to now draw out the theoretical implications of this.

To maintain that every phenomenon is new for Peirce, or that novelty is everywhere, undoubtedly means to attribute to the founder of pragmatism a very strong position regarding novelty and its presence in the field of experience. Even among the so-called "philosophers of the event" (cf. Part I, Ch. 1, § 3 of the present dissertation), only very few thinkers laid so much stress on this point. For instance, let us simply consider how Derrida assigns the *status* of event just to a limited range of phenomena, such as the gift, hospitality or death. On the contrary, Peirce – by stressing the mutual presence of the three categories in every phenomenon – insists on novelty as belonging to each phenomenon. Accordingly, given Peirce's almost unique standpoint on the topic, it is even more relevant to summarize the description of novelty he promoted in his phenomenology, explaining in this way how every phenomenon can be considered as new.

(ii) We can maintain that "novelty is everywhere" because every phaneron – insofar as Firstness is an essential feature of it – is absolutely original; it retains a "positive possibility regardless of anything else" (CP: 8.329, 1904). This originality, this "positive possibility regardless of anything else," is indeed evidenced by the level of sensations. Besides, we can maintain our thesis because – insofar as Secondness is an essential feature of any phaneron – every phaneron is definitely singular, external, individual, and so irreducible and non-repeatable, as perceptual experience attests.

[28] As we have already seen in § 2 of the present chapter.

Consequently, novelty lies in the originality and singularity of every phenomenon, as is revealed in the experience of sensation and perception. Moreover, as we already mentioned in § 2.3 ("Thirdness and Novelty"), novelty is experienced in the dimensions of immediacy and presentness.[29]

Generally speaking, by unifying these characters we can connote novelty as the present, which Peirce in turn designates "the Nascent State of the Actual" (EP2: 359, 1905). According to Peirce, the "Nascent state" is indeed collocated "between the Determinate and the Indeterminate" (EP2: 358). It corresponds to the dimension of the present conceived of as original, free, absolutely individual and irreducible.

This summary, however, does not fully capture Peirce's thought since Thirdness permeates phenomena as well. Thus, the contemporary presence of categories in phenomena makes Peirce's conception of phenomenological novelty harder to understand.[30] If every phenomenon can be said "new" because of its absolute originality and individuality, how to conceive these characters together with Thirdness?

In this regard, it is imperative to note that Peirce's phenomenology intrinsically reckons on a diagrammatic way of thinking (cf. § 1.1 of the present chapter). Indeed, the very possibility to "represent", or – better yet – to describe Firstness and Secondness without reducing them to Thirdness is only by means of diagrams, according to the author. As he states: "there can be no better instrument for thinking about the Constituents of the Phaneron – which is itself too evanescent for definite comprehension – than to think about Existential Graphs" (MS 499: 17, 1906).[31] In other words, we need to refer to the diagrams and Existential Graphs if we want to fully understand how phenomenology exhibits the originality of Firstness and the

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[29] Cf. also EP2: 358, 1905: "As for the Present instant, it is so inscrutable that I wonder whether no skeptic has ever attacked its reality. I can fancy one of them dipping his pen in his blackest ink to commence the assault, and then suddenly reflecting that his entire life is in the Present, – the 'living present', as we say, – this instant when all hopes and fears concerning it come to their end, this Living Death in which we are born anew."

[30] As I have already stressed, Peirce stated many times both the contemporary presence and mutual irreducibility of the three categories. Accordingly, on the one side he strongly criticizes Hegel, because in the latter's writings the first two categories, or the first two "stages of thinking" (EP2: 143, 1903) are introduced only "in order to be *aufgehoben*" (EP2: 164). On the other side, according to Peirce Firstness and Secondness cannot be reduced by any means to Thirdness, and this is exactly why we can say that every phenomenon is new. If they were reducible as they are for Hegel, there would be no more genuine Firstness and Secondness in phenomena.

[31] Also referred in § 1.1 of the present chapter, fn. 8.

individuality of Secondness in a universal way, though not from the perspective of reasoning, representation or Thirdness.

Moreover, on the whole the presence of Thirdness in phenomena is not to be considered as a limit of Peirce's conception of novelty. Indeed, the mutual presence of categories (i) enlarges Peirce's conception of "experience" (cf. §§ 1.3, 2.3 of the present chapter), and thereby (ii) allows Peirce to take novelty out of the field of pure immediacy or immediate perception. Indeed, as we will see in a while, this allows Peirce to make room for novelty in his gnoseology and logic, as the theory of abduction demonstrates.

(i) As we have already analyzed the Third category, it is crucial here to put emphasis on its difference from, and connection to, Secondness. Peirce in various passages indicates Secondness as the category of experience (cf. § 2.2 of the present chapter). All the same, according to him experience cannot be reduced either to pure feelings or to brute facts, to mere *ecceitas* (haecceity), as Duns Scotus would say. On the contrary, experience is a matter of habits for him.[32] Therefore the author stresses the difference between an "experiential event" and an "experience" (cf. James 1992-2004 X, 535). With the first phrase – "experiential event" – we only refer to a phenomenon so far as Secondness is concerned, while with the second one – "experience" – we refer to a phenomenon so far as Thirdness is concerned. Thus, the mutual presence of categories, as well as the central role of Thirdness, are strongly maintained. However, if we especially recall § 1.3.2 of the present chapter ("Secondness"), it will be clear that Peirce's *experiential events*, that is Secondness, and *experiences*, that is Thirdness, are closely intertwined. Accordingly, we have seen that for Peirce "Experience is our only teacher. […]. But precisely how does this action of experience take place? It takes

[32] This enlargement of experience is, for instance, the very difference of Peirce's concept of experience from James's one. As the former wrote to the latter: "As for your 'pure experience', which you expressly say is a feeling, it seems to me ill-named experience, which you describe as a process. But you never mean by experience what I mean, as is evident from your amendment to my doctrine of pragmatism. Experience and an experiential event or perception are, for me, utterly different, experience being the effect which life has produced upon habits. Apparently this is something to which your theory pays little regard, otherwise you could not call a feeling or sensation experience" (James 1992-2004, x, 535).

place by a series of surprises" (EP2: 153-54). Thus, we have already shown how the phenomenon of surprise is highly instructive for understanding Secondness. However, we can note how the same phenomenon of surprise immediately calls for Thirdness: our only *teacher* is experience, Peirce says. This means that we *learn* from it, and certainly to learn from it is a matter of Thirdness, not of Secondness. Indeed, by means of shocks and surprises *expectations* are shattered and new ones are opened up. So on the one hand, experience is made of habits and expectations and cannot be reduced to mere duality or brute facts; but on the other hand every "new" expectation, every experience in general, roots in the surprise given by the brutal duality of experiential events. Without expectation, surprises could not take place, without surprise *new* expectations would never emerge. In a sense, expectation and surprise are complementary: we cannot have one without the other.

(ii) Given the complementary relationship of expectation and surprise, we can also understand how the peculiar intertwinement of Secondness and Thirdness in each phenomenon is the only phenomenological way to grant the allowance for novelty within the field of knowledge. By virtue of the three-fold essence of each phenomenon, novelty is no more a matter of immediate sensation or perception. We cannot merely feel novelty as originality and perceive it as irreducibility. Although the phenomenological category of Thirdness *per se* does not illustrates any further characteristic of phenomenological novelty, it helps us express the complexity of experience, and especially paves the way for gnoseological novelty and creative thinking. In other words, it paves the way for abduction.

Chapter 2

Peirce's Gnoseological Account of Novelty

As we mentioned at the beginning of the dissertation (cf. Part I, Ch. 1, § 1), to some extent the very problem of novelty can be seen as the problem of knowledge *per se*. At the outset of philosophy, and from Plato onwards, the question of knowledge has been addressed in the following paradoxical way: "How can I know something that I didn't know before?" Other ways of asking this question include, "How can I know something new?" and, more broadly, "How can I know something?" Indeed, the problem of acquiring knowledge only amplifies the core problem of knowledge itself. Consequently, we can say that if we are to answer Plato's questions about knowledge, we must also offer an explanation for novelty, insofar as it is considered from a gnoseological perspective.

From yet another perspective, if we consider the relationship between novelty and knowledge by questioning the concept of gnoseological novelty, we will come to the conclusion that the possibility of gnoseological novelty strongly depends on the theory of knowledge in question. In posing the question of gnoseological novelty, we ask ourselves, "*What* is novelty? Is it possible to *speak* or to *think of* something new?" That is, "Is it possible to speak or think of something new, preserving the novelty of the object in question, and without reducing it to previous linguistic patterns or cognitive schema?" In answering this question, however, we find ourselves relying upon the concept of knowledge we assumed before. For instance, according to Kant the likelihood of acquiring or increasing knowledge is assured by synthetic *a priori* judgments, and insofar as synthetic *a priori* judgments are maintained, they provide new information, necessarily true. However, according to Kant's basic assumption, the new pieces of information added are not actually beyond the limits and the rule of the faculty of thought (or – better yet – of the understanding), therefore they are confined not only to the realm of phenomena, but also within the limits of pure reason, denying

in this way the likelihood of "real novelty," in the vague sense of something else, beyond reason, though knowable by it.[1]

As is apparent, the concepts of novelty and of knowledge, are complex and intertwined, and questions surrounding them have been raised throughout the history of philosophy. We have already noticed how, even at the phenomenological level, Peirce's stand on the subject is quite particular, and necessitates further examination, here at the specific level of gnoseology.

1. From Peirce's Phenomenology to his Theory of Knowledge

In the last chapter, we saw how the presence of Thirdness opens up, at the phenomenological level, the possibility of dealing with novelty from a gnoseological point of view. As Peirce synthetically claims,

> the saving truth is that there is a Thirdness in experience, an element of Reasonableness to which we can train our own reason to conform more and more. If this were not the case, there could be no such thing as logical goodness or badness; and therefore we need not wait until it is proved that there is a reason operative in experience to which our own can approximate. We should at once hope that it is so, since in that hope lies the only possibility of any knowledge (CP: 5.160, 1903).

Accordingly, to admit novelty as a possibility of knowledge means first of all to restate the reality (cf. CP: 1.14, c. 1897) and positive power of knowledge, and then to strongly affirm its progressive advance: namely, that the limits of our present knowledge are continuously being reestablished and widened by the accomplishment of new knowledge.[2]

When Peirce speaks of knowledge, he is mainly referring to scientific knowledge, both in the sense of a rigorous method and inquiry, and in the sense of the attainments of natural sciences. It is the inclusion of "novelty" understood as an object or possible

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[1] Cf. Kant, *Critique of Pure Reason*. In particular, the prefaces to the first and second edition, and §§ IV, V and VI of the Introduction.

[2] As we will see later, for Peirce, the improvement of knowledge represents for the counterpart of his proclaimed fallibilism. Among others, cf. for instance Misak 1991, Margolis 1994, Cooke 2006.

result of knowledge that makes Peirce commit himself to the elaboration of a great logic of discovery. This logic aims for validity in relation to gnoseology, the general theory of knowledge, as well as in relation to epistemology, scientific knowledge *strictu sensu*. For Peirce, an account of knowledge must include novelty. If we could not know anything, or anything new, there would be no room for discoveries, and even less for a *logic* of discovery.

This great logic of discovery, also called "abduction," is well known as Peirce's "major single discovery" (Fisch 1981, 20), and it is the focus of the present chapter. Given the broadness of the topic and the vast amount of critical studies on it, the present analysis will be oriented only to the clarification of the place of novelty in Peirce's gnoseology. Before undertaking abduction, however, it is also necessary to clarify what will be the specific field we will investigate, and how Peirce conceives of it.

Given the radical character of Peirce's realism, as well as his synechism, almost every text he wrote carries with it significant traces of his theory of knowledge. Nevertheless, the key to understanding Peirce's gnoseology lies in an exploration of his account of logic.

2. Into the Realm of Logic: Logic *as* Semeiotic

If we refer to Peirce's classification of the sciences (cf. Part II, Ch.1, § 1), logic is the third branch of normative sciences, after esthetics and ethics, and immediately before metaphysics. The author introduces them as follows:

> Supposing […] that normative science divides into esthetics, ethics, and logic, then it is easily perceived, from my standpoint, that this division is governed by the three categories. For normative science in general being the science of the laws of conformity of things to ends, esthetics considers those things whose ends are to embody qualities of feeling, ethics those things whose ends lie in action, and logic those things whose end is to represent something (EP2: 200, 1903).

As we have seen for phenomenology and mathematics, logic borrows its principles from ethics and esthetics. Logic is also divided into three branches: (i) *Speculative*

Grammar, (ii) *Critic* and (iii) *Methodeutic*.[3] Logic's specific branches are beyond the scope of the dissertation.[4] Therefore, for the present purposes I will limit myself to a general introduction of Peirce's logic and its main characteristics.

In the *Century Dictionary*, Peirce offered the following account of logic:

> The definition of logic has been much disputed […]. There was much discussion in ancient and medieval times of the question whether logic was a mode of knowing, or an instrument of science, or an art, or a practical science, or a speculative science. There was also a great diversity of opinion as to the subject-matter of logic, some holding that it had to do with words, others that it treated of the *ens rationis*, or that which has its existence in though, and still others that it related to argumentations or some instrument of knowing. In modern times, especially since Kant, the real divergence of conception has been very much greater, one party holding that the main business of logic consists in developing the true theory of the process of cognition, and a second that its chief work is to separate inferences into classes distinguished by their form, while a third maintains that the form and the matter of thought have to be evolved together (Whitney 1889-91, 3504).

At first glance, according to Peirce's own definition, his position can be included among the modern ones. In his writings, apart from the general definitions of logic as "the art of reasoning" (EP2: 11, 1895), or as "coeval with reasoning" (EP2: 200), the author maintains that "whatever opinion be entertained in regard to the scope of logic, it will be generally agreed that the heart of it lies in the classification and critic of arguments" (EP2: 200, 1903). He seems therefore to belong to the second group listed in the citation above. However, if we take into consideration other sentences by Peirce, we realize that his position is more complex. For instance, he writes elsewhere that

> as all knowledge comes from synthetic inference, we must equally infer that all human certainty consists merely in our knowing that the processes by which our

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[3] Cf. EP2: 260, 1903: "[Logic] has three branches *Speculative Grammar*, or the general theory of the nature and meanings of signs, whether they be icons, indices or symbols; *Critic*, which classifies arguments and determines the validity and degree of force of each kind; *Methodeutic*, which studies the methods that ought t be pursued in the investigation, in the exposition, and in the application of truth."

[4] With this regard, cf. for instance Burks 1943.

> knowledge has been derived are such as must generally have led to true conclusions (CP: 2.693, 1878).

In contrast to other statements that might cause us to group Peirce with modern philosophers who think that "the main business of logic consists in separating inferences into classes," Peirce belongs to the first group indicated, which is committed to "developing the true theory of the process of cognition." Moreover, if we compare this passage to Kant's general approach on this point, Peirce seems to be proceeding on the road taken by Kant. In spite of this, and even in spite of the fact that Kant certainly influenced Peirce, especially in his early writings, Peirce's position seems to be purposefully trying to overcome certain Kantian conceptions. This becomes clear when we turn our discussion to Peirce's idea of logic.

As Peirce himself suggested, the subject-matter of logic is widely debated. However, his own position is clear and represents the core of his whole philosophy: the proper object of logic is signs. He writes that

> the term "logic" is unscientifically by me employed in two distinct senses. In its narrower sense, it is the science of the necessary conditions of the attainment of truth. In its broader sense, it is the science of the necessary laws of thought, or, still better (thought always taking place by means of signs), it is general semeiotic, treating not merely of truth, but also of the general conditions of signs being signs […] also of the laws of the evolution of thought […] (CP: 1.444, c. 1896).

Peirce on the one hand restates his view of logic as "the science of the necessary conditions of the attainment of truth," and on the other hand puts forth his conception of logic as "general semiotic," since, for Peirce, thought always "takes place by means of signs." For this reason, the subject-matter of logic are signs. The view that logic is semiotic, that thought is "being performed by means of signs" (EP2: 260, 1903), certainly lies at the core of all Peirce's philosophy. Moreover, Peirce's theory of knowledge, as well as his anthropology and metaphysics, all depend on the notion that logic is semiotic. It is significant to note here that Peirce does not use "semeiotic" as *a* possible interpretation of logic, but as the only correct one. As he explicitly states,

> Logic, in its general sense, is […] only another name for semiotic ({sémeiōtiké}), the quasi-necessary, or formal, doctrine of signs. By describing the doctrine as 'quasi-necessary,' or formal, I mean that we observe the characters of such signs as we know, and from such an observation, by a process which I will not object to naming Abstraction, we are led to statements, eminently fallible, and therefore in one sense by no means necessary, as to what must be the characters of all signs used by a 'scientific' intelligence, that is to say, by an intelligence capable of learning by experience (CP: 2.227, 1897).

Accordingly, when we say that Peirce's logic is semeiotic, we are not speaking of one characteristic among others. Rather we are speaking of *the* proper, general, character of his logic. Peirce writes that "logic is itself a study of signs. Now a sign is a thing which represents a second thing to a third sign, the interpreting thought" (RLT: 146, 1898). Moreover, because logic deals with signs as its object, the semiotic character of logic supports Peirce's understanding of knowledge as interpretation of signs. As the anti-Cartesian essays explain, knowledge is never intuitional.[5] Peirce writes, "Every cognition is determined logically by previous cognition. […] We have no power of thinking without signs" (EP1: 30). If it is the case, however, that reasoning moves from sign to sign without any possibility of intuition, and if logic proves its soundness, to what extent can logic concern novelty? Does logic allow for novelty or is it rather a closed system?

An exhaustive answer to this question will be suggested by the end of the chapter. For the moment, we will first show how Peirce explicitly takes novelty into consideration with regard to logic. We will focus on Peirce's theory of abduction in order to show how Peirce deliberately encompasses novelty in his account of logic.

3. At the Core of Logic: Abduction

Peirce emphasizes the semiotic nature of logic in as much as he emphasizes logic as a science of inquiry (cf. for instance Forster 2011, 22). To speak of logic as a science of inquiry means first and foremost to pinpoint a method that is not merely useful for the

[5] Cf. Peirce's in particular *Questions Concerning Certain Faculties Claimed for Man* (EP1: 11-27, 1868) and *Some Consequences of Four Incapacities* (EP1: 28-55, 1868).

classification of arguments, but is actually necessary to acquire knowledge. Peirce goes so far as to say that "knowledge is logic," referring here to the "general training of mind" required by people to make "their powers most effective in a new direction" (cf. EP1: 212-213, 1882). Also, according to Peirce, logic is a science of inquiry in the sense of a "science of discovery" or "invention." It has the power of increasing information.[6] Accordingly, logic is a science of discovery not because it is viewed as empirical science (after all, it is in fact a formal science), but because logic itself can improve our knowledge. As Anderson puts it, "logic is not a matter of a closed system of thought but of open human inquiry" (Anderson 1987, 21). Moreover, Peirce's logic is usually called a logic of discovery because abduction, his greatest contribution to logic, and probably his "major single discovery" (Fisch 1981, 20), formalizes the structure of the formation of hypothesis, and it is therefore the method through which science has always advanced.

In summary, according to Peirce (i) logic *per se* represents a way of increasing knowledge on the one hand, and on the other (ii) the specific method of abduction is the method of scientific discoveries, attested in their validity throughout the history. Similarly, novelty is seen to be pivotal in Peirce's logic for two reasons. On the whole, gnoseological novelty is conceived of by Peirce as the proper aim of logic. That is, logic's intent is to find new ideas and consequently to enlarge its boundaries.[7] As Peirce's states: "the object of reasoning is to find out, from the consideration of what we already know, something else which we do not know" (EP1: 111, 1877).

More particularly, Peirce's logic has been described as "the logic of discovery," and in this sense can be viewed as a logic of novelty or creative logic. Every new idea is brought about by that form of reasoning that Peirce names "abduction." According to Peirce, abduction leads every process of discovery and is demonstrated throughout the

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[6] Cf. CP: 2.430 (1893) Regarding the distinction between *discovery* and *invention*: "An increase of information, in general, is, in modern speech, called a *discovery*. The old word, *invention*, was much better, since this left discovery to be restricted to the finding of a new thing – as the discovery of America – while the finding out of a new character was specifically called a *detection*. Thus, Oldenburg, the Secretary of the Royal Society, writes in 1672, that the dispersion of light is 'the oddest, if not the most considerable, detection which hath hitherto been made into the operations of nature'. It is a pity these nice distinctions have been lost. We must now speak of *the discovery of an occurrence* or instance and *the discovery of a property*" (emphasis added).

[7] For Peirce logic is not a science "completed," meaning that there is nothing more to discover (cf. MS 652). On the contrary, he underlines that "every step in science has been a lesson in logic" (EP1: 111, 1877).

history of science. As he puts it, "a man must be downright crazy to deny that science has made many true discoveries. But every single item of scientific theory which stands established today has been due to abduction" (EP2: 216-217, 1903). What is abduction, then? What is its own peculiar structure and how is it differentiated from other kinds of reasoning?

Peirce affirms that the concept of abduction comes from the Aristotelian concept of "*apagogé*," found in a passage of *Prior Analytics* (Book 2, Ch. 25). He thereby embraces an interpretation of *apagoge* suggested in the 16th Century by the Italian philosopher Giulio Pace (cf. CP: 1.68, c.1896; CP: 7.249–55, 1901; CP: 5.144, 1903). [8] Peirce spent his life working on his theory of abduction and other forms of reasoning, often turning back to his previous thoughts, and significantly modifying them. To get a rough idea of Peirce's commitment to abduction, consider what he wrote in 1908:

> I am one, Charles Peirce, now about seventy years old, who has for about fifty-eight years been trying to come to understand the nature of the different kinds of reasoning, and for the last twenty has more and more led the life of a recluse in order to escape all distractions from that study (MS 339, 332v, 308).

This quote reveals the importance of this topic for Peirce and also helps us to imagine the vast number of critical studies made on it. For a detailed study on abduction I refer to others' works.[9] Here I will simply offer (i) the general definition of abduction,

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[8] In this regard, cf. also Flórez 2014 and MS 756 (repoted in Maddalena 2003, 40-41).

[9] Cf. especially Fann 1970, Anderson 1987, Bonfantini 1987, but also Fabbrichesi 2003, 137-160, Maddalena 2005, Aliseda 2006, Barrena 2007, to whom I will mainly refer to. On the whole, an excellent overview on Peirce scholarship on abduction has been drawn by Chihab El Khachab in 2013, although I do not support the main thesis of his essay. He sums up the different perspectives in this way: "Several scholars, following in the footsteps of N. R. Hanson's interpretation of abduction as the 'logic of discovery' (1958), define abduction as an initial 'creative' stage in scientific inquiry, where new ideas are generated and new discoveries made (Anderson 1986; Roth 1987; Paavola 2004, 2005, 2006). With a similar interest in abduction as a creative starting point for inquiry, some scholars have inquired into the implications of abduction for formal logic (Shanahan 1986; Kapitan 1990; Burton 2000; Schurz 2008; Hoffman 2010), while others have inquired into its implications for learning, understood as an investigative process (Nesher 2001; Paavola and Hakkarainen, 2005). Despite their contrasting foci, these scholars share an important common point: in their view, to understand how ampliative reasoning works, in science just as in everyday life, means to understand what abduction is. […] For if we need to define Peircean abduction in order to understand how new ideas emerge, we will inevitably collide against temporal, terminological and topical variations within Peirce's own account of abduction. Scholars interested in the problem of discovery have thus been brought either 1) to commit to one particular definition of Peircean abduction in accounting for discovery (e.g., abduction as instinct, or abduction as inference), 2) to propose a new or a reconfigured definition for the notion (e.g., Paavola's 'strategic' view

(ii) its difference from deduction and induction, (iii) Peirce's late concept and formula of abduction, since he himself states that "in almost everything I printed before the beginning of this century I more or less mixed up Hypothesis and Induction" (CP: 8.227, 1910). After this general introduction, I will explore in detail the connection between abduction, creativity, and novelty.

(i) *Definition*. The concepts of "hypothesis" (CP: 2.623-25, 1878; CP: 2.706-07, 1883; CP: 6.144-46, 1892), "presumption" (CP: 2.776-77, 1901; CP: 2.791, 1901), and "retroduction" (CP: 1.68, c. 1896; RLT 141, 1898; CP: 8.385, 1913) are all employed by Peirce in describing the inferential process of abduction. Abduction is presented by Peirce as a specific "kind of reasoning" (EP2: 205, 1903), one which is autonomous and irreducible, with its own consistency and degree of validity. Peirce also describes this specific kind of reasoning as a "weak one" (EP2: 216, 1903). He says that its weakness is in fact due to its specific function, namely "the process of forming an explanatory hypothesis," (EP2: 216, 1903) consisting in "turn[ing] back and lead[ing] from the consequent of an admitted consequence, to its antecedent" (MS 857). Abduction consists in this process, and it is, therefore, "the only logical operation which introduces any new idea. For induction does nothing but determine a value and deduction merely evolves the necessary consequences of a pure hypothesis" (EP2: 216, 1903). Thus, abduction is defined as that inferential reasoning which carries only new ideas. Moreover, these new ideas are nothing but explanatory hypotheses that have arisen from dealing with surprising facts. Before analyzing this point in depth, we will discuss abduction's formal account and its difference from deduction and induction.

(ii) *Deduction, Induction, Abduction*. As we can infer from the above quotation, Peirce's logic is not confined within the limits of deductive reasoning. Indeed, as Maddalena states, "the *ratio* of abduction – the passage from consequent to antecedent – is a fallacy from the point of view of deductive rationality and it cannot even rely on a generic approval from common sense as induction does" (Maddalena 2005, 243). Nevertheless, Peirce pinpoints three kinds of reasoning, and maintains that each of them is valid, with its own degrees of security and uberty.[10] These three kinds of reasoning

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of abductive inference), or 3) to simply reject abduction as a valid answer to the problem (e.g., Frankfurt 1958; Kapitan 1990, 1992)" (El Khachab 2013, 158-59).

[10] I have intentionally used the terms Peirce employed in his mature thought, cf. EP2: 463-474, 1913.

are deduction, induction, and abduction (or hypothetical). The first explication of this type of reasoning is a provisional account found in *Deduction, Induction and Hypothesis* (1878). At this time, Peirce still used the term "hypothesis" to indicate it. He divides inferences into these three kinds of reasoning: (a) deduction is the inference of the *result* from the *rule* and the *case*; (b) induction is the inference of the *rule* from the *case* and *result* and (c) hypothesis is the inference of the *case* from the *rule* and the *result*. The three of them are highly different in their proceedings; the degree of security decreases from deduction to abduction, whereas, in contrast, the degree of uberty increases. Peirce exemplifies them as follows:

Deduction:

Rule.– All the beans from this bag are white.
Case.– These beans are from this bag.
Result.– These beans are white.

Induction:

Case.– These beans are from this bag.
Result.– These beans are white.
Rule.– All the beans from this bag are white.

Hypothesis:

Rule.– All the beans from this bag are white.
Result.– These beans are white.
Case. These beans are from this bag.

(cf. EP1: 188, 1878)

According to this explanation of hypothesis, abduction is simply the reversion of a deductive syllogism. Later on, however, Peirce developed a really autonomous process for abduction, entirely independent from the deductive one. Before analyzing it, let us conclude our consideration of how Peirce understands these methods after 1900.

As we have already mentioned, according to Peirce, only abduction can provide new ideas; however, in inquiry, the three methods of reasoning are all present.[11] He puts it as follows:

[11] For a detailed treatise on this topic, see especially Anderson 1987, 50-53.

> Deduction is the only necessary reasoning. It is the reasoning of mathematics. It starts from a hypothesis, the truth or falsity of which has nothing to do with the reasoning; and of course its conclusions are equally ideal. […] Induction is the experimental testing of a theory. The justification of it is that, although the conclusion at any stage of the investigation may be more or less erroneous, yet the further application of the same method must correct the error. The only thing that induction accomplishes is to determine the value of a quantity. It sets out with a theory and it measures the degree of concordance of that theory with fact. It never can originate any idea whatever. No more can deduction. All the ideas of science come to it by the way of abduction. Abduction consists in studying facts and devising a theory to explain them. Its only justification is that if we are ever to understand things at all, it must be in that way (EP2: 205, 1903).

Accordingly, the three methods have different forms, different degrees of certainty and different aims. In a sense, deduction is the reasoning of necessity, induction that of probability, and abduction that of possibility.[12] In spite of the differences between them, however, in *The Neglected Argument for the Reality of God* Peirce describes them as three complementary stages of the process of inquiry. The plausible hypothesis or – better yet – retroduction represents the first stage, but it "does not afford security" (EP2: 441, 1908), so it needs to be tested. At this point deduction is required. Deduction explicates the hypothesis and demonstrates it. After deduction, "the enquiry enters upon its Third Stage, that of ascertaining how far those consequents accord with Experience, […]. Its characteristic way of reasoning is Induction" (EP2: 442, 1908). What is maintained, and indeed emphasized by Peirce throughout the course of his thought, is the creative character of abduction, its unique power to put forth an hypothesis and in so doing to introduce new ideas.

(iii) *Late Concept of Abduction*. In *Pragmatism as the Logic of Abduction* (1903), Peirce emphasizes that "the question of pragmatism is the question of abduction" (EP2: 235, 1903), and he reaffirms the autonomous inferential character of abduction.[13] Even though Peirce maintains that abduction "is very little hampered by logical rules,

[12] Cf. also CP: 5.171: "Deduction proves that something *must be*; Induction shows that something *actually* is operative; Abduction merely suggests that something *may be*."

[13] On the difference between the first formula, still depending on that of deduction, and the more autonomous one cf. Maddalena 2003, 40-44.

nevertheless [it] is logical inference, asserting its conclusion only problematically or conjecturally it is true, but nevertheless having a perfectly definite logical form" (EP2: 235). In other words, Peirce specifies that the formulation of an hypothesis does not happen haphazardly, without any prevision, randomly, in any moment. Instead, every time hypothesis occurs, it must happen according to its own inferential process. What, then, is this kind of autonomous inferential process? Peirce presents it as follows:

> The surprising fact, *C*, is observed;
>
> But if *A* were true, *C* would be a matter of course.
>
> Hence, there is reason to suspect that *A* is true (EP2 : 231).

In his writings of 1878, it was still possible to interpret abduction as a "disguise deduction" (cf. Maddalena 2005, 245), but the formula presented in 1903 suggests that we should think of abduction as a single and irreducible inferential process. Indeed, in the *Illustrations of the Logic of Science* hypothetical reasoning was indicated as the inference of a case ("These beans are from this bag") from a rule ("All the beans from this bag are white") and a result ("These beans are white"). However, in this example, we must presuppose the general rule "these beans are from some bag" to infer that "These beans are from this bag." Conversely, the latter formulation comprises the connections among all the three passages, granting to abduction its own autonomy.[14] In Peirce's own words, "the characteristic formula of reasoning [is that of] reasoning from consequent to antecedent" (EP2: 441, 1908). Therefore, abduction is presented as the "syllogism exhibiting the surprising fact as necessarily consequent upon the circumstances of its occurrence together with the truth of the credible conjecture, as premises" (EP2: 441). For this reason, Peirce prefers to call it *retroduction* in his late writings.

To sum up this brief introduction to abduction, we can say that abduction is central to Peirce's logic. It is his greatest contribution to logic, offering a scientific way of thinking about the logic of discovery. Moreover, abduction is pivotal in Peirce's logic

[14] This autonomous character can be fully understood only in connection to Peirce's metaphysical and cosmological standpoint, cf. § 5 of the present chapter, and Ch. 3.

since it represents the first and only synthetic and creative stage of thinking. As the author declares:

> *Presumption,* or, more precisely, *abduction* […] is the only kind of reasoning which supplies new ideas, the only kind which is, in this sense, synthetic. […] Its only justification is that its method is the only way in which there can be any hope of attaining a rational explanation (CP: 2.776-7).

Peirce thus presents abduction as the only creative kind of reasoning, as well as the only explanatory one. But to what extent is abduction explanatory and uniquely creative?

4. Abduction, Creativity and Novelty

As we have seen, abduction is an inferential kind of reasoning,[15] with a degree of validity that corresponds to its level of plausibility. In this way it differs from induction, which corresponds to probability, and from deduction, which corresponds to certainty. Apart from its logical form, the primary characteristics of abduction are two: creativity and explanation. By its nature, a hypothesis be both explicative of a surprising state of things and able to introduce a new idea into thought. We will first discuss the second of these, as it is extremely relevant to abduction although tangential to the present scope of investigation.

4.1. Abduction as Explanatory

As we have already mentioned, abduction is an elucidative inference. Its aim is to explain something that was incomprehensible before its appearance. From another perspective, if abduction consists in hypothesis, hypothesis is always a particular hypothesis *of something*. The hypothesis which abduction calls for is an *explanatory* hypothesis. Abduction's goal is therefore to account for a fact, inexplicable up to that

[15] As shown in § 3 of the present chapter, Peirce introduces abduction as a kind of reasoning, that is, as an inferential one. The inferential essence of abduction is indeed the first novelty he introduces in his account of logic. The process of discovery is not an intuitive one, and does not happen randomly. According to Peirce it must follow a logical form. It *is* a logical process. Peirce clearly states that "this step of adopting a hypothesis as being suggested by facts, is what I call *abduction*. I reckon it as a form of inference, however problematical the hypothesis may be held" (EP2: 95, 1901).

moment. In this goal lies the justification of abduction itself. As Peirce states, "nothing justifies a retroductive inference except its affording [an] explanation of the facts" (RLT: 180, 1898). Moreover, from very early on, Peirce emphasizes the fact that the function and justification of abduction consists in its explanatory character. He asks, "What is a good abduction? What should an explanatory hypothesis be to be worthy to rank as hypothesis? Of course, it must explain the facts" (EP2: 235, 1903).[16] Accordingly, by virtue of its explicative character, abduction is recognized as the only logical instrument of explanation, and – we can dare to say – as the only specific instrument of knowledge. Indeed, to come to an explanatory hypothesis means, broadly speaking, to identify it as the unique way of access to the knowledge of the world. Abduction is the logical source of every statement whatsoever. An explanatory hypothesis is the *medium* through which we can talk about "things." We can speak of abduction with regard to a new scientific discovery, but we can do it also with regard to the first instant the first man came to know something. For instance, in 1865 Peirce argues that "yet it is hypothesis with which we must start; the baby when he lies turning his fingers before his eyes is making a hypothesis as to the connection of what he sees and what he feels. Hypotheses give us our facts" (W1: 283, 1865). In this sense, abduction is at the basis of every possible thought regarding reality: it "give[s] us our facts." Thus, according to Peirce, whether we are discussing scientific discoveries or daily life, without hypotheses it would be impossible to extend our knowledge, as well as to acquire knowledge in general. This is why he goes so far as to say that "if we are ever to learn anything or to understand phenomena at all, it must be by abduction that this is to be brought about" (EP2: 216, 1903).

If abduction is the only way to understand phenomena at all, it also follows that, for Peirce, to understand means "to go from the consequent to the antecedent," which is

[16] As we have already mentioned in §3, abduction does not end with abduction itself. Rather, according to Peirce's later thought, abduction requires an inductive method in order to be verified. As Peirce states, "But what other conditions ought it to fulfill to be good? The question of the goodness of anything is whether that thing fulfills its end. What, then, is the end of an explanatory hypothesis? Its end is, through subjection to the test of experiment, to lead to the avoidance of all surprise and to the establishment of a habit of positive expectation that shall not be disappointed. Any hypothesis, therefore, may be admissible, in the absence of any special reasons to the contrary, provided it be capable of experimental verification, and only in so far as it is capable of such verification. This is approximately the doctrine of pragmatism. But just here a broad question opens out before us. What are we to understand by experimental verification? The answer to that involves the whole logic for of induction" (EP2: 235, 1903).

following the logic of abduction.[17] However, the logical movement from the consequent to the antecedent coincides with the structure of abduction insofar as it only occurs the first time we go from *that* consequent to *that* antecedent. Similarly, we cannot consider an explanatory hypothesis abduction if indeed we come to that hypothesis based on previous experiences that sustain that hypothesis. On the contrary, in this case an inductive reasoning would lie at the basis of our conjectural conclusion. For example, let us say that we go outside on a sunny day, and discover that street where we are walking is very wet. We are initially surprised by this strange phenomenon: why is the street wet if it is not a rainy day? A few moments later, we conjecture that, since every week the street cleaner washes the streets of the neighborhood, the asphalt is wet because the street cleaner had passed before we went out. In this case, we may think our reasoning is an example of abduction: we can formalize the reasoning as follows:

- We observe on a sunny day the wet asphalt of a street (= The surprising fact, *C*, is observed, being *C* the wet asphalt)

- But if the cleaner passed, the asphalt would be wet (= If *A* were true, *C* would be a matter of course; being *A* the cleaning of the street)

- Hence, there is reason to suspect that the street cleaner passed (= Hence, there is reason to suspect that *A* is true)

However, even though the formula stated is that of abduction, we did not abductively infer *A*. Indeed, we have inferred that the street cleaner passed recently only in the light of our past experiences, namely our experience that every week the street cleaner washes the streets in the area. In contrast to this kind of reasoning, Maddalena points out that abduction "can work if, and only if, two conditions are present: the researcher is facing a surprising phenomenon, and it is completely unknown" (Maddalena 2005, 244). Only on the basis of these conditions can we speak of true abduction. Therefore, in the example of the street cleaner, true abduction was not employed because the phenomenon under consideration was not *completely* unknown.

[17] For a detailed analysis of this kind of retrospective process, see especially Sini 2000, and Fabbrichesi 2003: 146-149.

This characteristic of abduction makes us recall the other fundamental requirement of abduction: creativity. To restrict the proper use of abduction to the cases in which the phenomenon is surprising and unknown is to emphasize the fact that abduction is creative reasoning, or – better yet – the only way in which a new idea can enter into thought.

4.2. Abduction as Creative

Having offered a brief analysis of the explanatory nature of abduction, we will now turn to an analysis of the creative power of abduction. Peirce argues that, above all, the crucial issue concerning abduction is "whether that which really is an abductive result can contain elements foreign to its premises" (EP2: 231, 1903). In other words, the problem at the core of abduction is whether we can really come to new ideas that are not previously contained in our premises. For this reason, we have already associated abduction with discovery, and suggested that abduction is *the* logic of discovery. The concept of discovery itself implies both the explanatory side of abduction, and the creative one. Indeed, discovery always refers to understanding phenomena, and therefore intrinsically involves the aim of explanation. In addition, discovery implies novelty conceived of as prominent character. According to Peirce, "All scientific men are engaged upon nothing else than the endeavor to discover" (MS 1334, 1905), and "every scientific discovery relies on this method of abduction" (CP: 2.430, 1893), since "abduction is the only process by which a new element can be introduced into thought" (EP2: 224, 1903). Consequently, having already demonstrated the formula of abduction, we will now address the extent to which abduction is creative by closely analyzing the abductive process in its standard formula.

To do this, it is first necessary to make a distinction between two elements that have so far been discussed as though they were identical: namely, creativity and novelty. These two concepts certainly belong to the same semantic field. Nonetheless, their meanings are different, as shown by comparing their definitions, as well as their adjectival forms: *creative* and *new*. Starting from their definitions as they appear in basic dictionaries, *creativity* refers to the power to create, while *novelty* corresponds to the state or quality of being new. Creativity reflects an attitude, or a modality of action, while novelty a state of being. Moreover, 'novelty' can never be reduced to creativity. A

comparison of the adjectival forms of these words offers another perspective. For instance, the term 'creative' can refer to a way of thinking, to an artwork, etc. In all these cases, the word 'creative' functions as an attribute of a gesture, a style, or an attitude. In contrast, 'new' can likewise refer to an idea or a way of reasoning, but in such cases 'new' indicates states of being, not any power to "create" something. Furthermore, there are many things and phenomena that we may define as new without their being in any way a product of our action or thought. Creativity and novelty are certainly connected in so far as creativity brings about something that must be new. Moreover, it is novelty, the surprising appearance of something new, that makes a gesture or a thought creative. At the same time, however, it is clear that novelty is related to creativity but beyond it. Novelty escapes even "creative rules," as rules in general. For instance, it often happens in creative work that an artist or an advertiser can be extremely creative, yet the new idea she has or the new thing she creates is not the result of a decision. She cannot choose or decide to have a new idea. It is suddenly, and unexpectedly, that a new idea comes to her mind. It is not the result of a decision to be creative. For this very reason there are expressions like "an idea comes to one's mind," or "one runs into an idea."[18] It is only later, after a new idea has occurred to someone, that we can speak of a person's creative talent. In a sense, we can say that novelty is irreducible to creativity, and it is therefore beyond it. Creativity is the process that leads toward new forms, ideas, acts, or products, but the novelty of those "results," by virtue

[18] Regarding novelty and abduction, Anderson makes a useful distinction. Anderson notes that Peirce undertakes the analysis of the connection between abduction and novelty, stating that "new ideas ground the growth of science when they arise under the care of abductive reasoning. Their novelty, in being like biological variations, must be some combination of old and new; while the new may be *sui generis*, it is related to the past species of scientific ideas. […] In combining the old and new, scientific novelties are not radically new in the sense of having been created *ex nihilo* or of having been brought into being without relation. In short, they do not create their own referents; rather, they are new in presenting a new and better way of referring to what already is. Still, within this limitation, Peirce suggested two modes of scientific or abductive novelty: rearrangement and concept creation." "The first kind of novelty […] is a combination which is different from past views, but which is grounded in ideas or perceptions we have already. […] The second grade of novelty, which is not always easy to distinguish from the first, is the creation of a new concept – that is, of an idea which we have not previously had. […] When Peirce talked of new ideas, he suggested that radically new concepts can come into existence. For example, Newton hypothesized new concepts of force and gravity which he defined mathematically. Gravitation was not merely a rearrangement of old ideas about the cosmos, but was a new idea entirely. Not that Newton created gravity, but he created the concept of gravity. And this concept was radically new as an element of scientific knowledge. In terms of creative novelty, it seems a step beyond mere rearrangement (Anderson 1987, 47-48). Without denying this distinction between different kinds of novelty, it is important to note that the kind of novelty with which the present investigation is concerned is, without any doubt, the second kind.

of which we can actually talk about creativity, overcomes the power of creativeness. Yet, creativity is really creative when it exceeds itself. When the unforeseeable is reached, then novelty irrupts.

This distinction between creativity and novelty enables us to follow our investigation in a more detailed way, elucidating abduction both with regard to creativity, and with regard to novelty.

Regarding creativity, and following the results of the previous analyses (cf. § 3 of the present chapter), we can state that abduction is creative because it is the only logical process that reaches new ideas. In order for a new idea to enter into thought, it must enter through abduction. The creative feature of abduction is strengthened by the autonomy of the formula expressed by Peirce in 1903, which we examined above. As a consequence, if we were to ask, "Is thought creative?" the answer now would be: "It is, insofar as it is abductive." Then "Why is abduction creative?" "Because it introduces a new element into thought."

If we persist in asking how abduction introduces a new element into thought, that is if we interrogate abduction with regard to novelty, we will need to focus more intently on the formula we explored. On the one hand, it is manifest how abduction reaches the plausible statement of a new idea; on the other hand, if we ask "How does it come that *that* new idea appears," then the problem becomes more intricate.

I will start from the first line of the standard formula of abduction.

> The surprising fact, *C*, is observed.

This is the result from which an abduction starts. It is important to mention that, as we have shown, "surprising" is an essential feature of the phenomenon in question. A fact *must* be "surprising" if it is to activate an abduction. Thus, the first requirement of abduction entails an element that brings us back to phenomenology. As we discussed in Part II, Ch. 1, surprise pertains to the realm of phenomena, and it is the most exemplificative character of the phenomenological category of Secondness.

Therefore, the source of abduction *is* a surprising phenomenon, and we can assert this even in a strict logical sense. Without the *surprising* phenomenon, abduction would never begin to occur, but we can determine a *surprising* phenomenon only through a phenomenological analysis. This implies (i) that the logic of discovery depends upon a

previous phenomenological inquiry that offers a surprising phenomenon; (ii) that the precondition of abduction is the presence of a surprising phenomenon.

In this way, we see that a surprising phenomenon represents a necessary condition of abduction. For each occurrence of abduction, there must be a surprising phenomenon. Abduction is such if and only if a surprising phenomenon is present. Thus, it is from the perception of a surprising phenomenon that abduction arises.[19] However, the observation of the surprising phenomenon alone is not a sufficient condition of abduction. There is indeed a second "passage" necessary to develop an abductive inference.

The second and the third passages of an abductive argument are:

> If *A* were true, *C* would be a matter of course.
>
> Hence, there is reason to suspect that *A* is true.

Certainly, the last passage exhibits the new conclusion of abduction. This conclusion (that is, *A*) – although conjectural – is logically *new* because it is not included in the "surprising result" from which the abductive reasoning arises. Notwithstanding, the inference of *A* simply follows from the second step of abduction (If *A* were true, *C* would be a matter of course). Accordingly, it represents the heart of abduction, as well as its most problematic point in regard to novelty. Consider Peirce's following statement: "*A* cannot be abductively inferred, or if you prefer the expression, cannot be abductively conjured, until its entire contents is already present in the premiss, 'If *A* were true, *C* would be a matter of course'" (EP2: 231, 1903). In this case, the author restates that the possibility of the abductive inference of *A* is if and only if "its entire contents is already present in the premiss." As a consequence, we would not ask how do we infer *A*, but rather: how do we reach the premiss "If *A* were, …"?

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[19] Peirce states: "Of course, nothing can appear as definitely new without being contrasted with a background of the old. As this, the infantile scientific impulse, – what becomes developed later into various kinds of intelligence, but we will call it the scientific impulse because it is science that we are now endeavoring to get a general notion of, – this infantile scientific impulse must strive to reconcile the new to the old. The first new feature of this first surprise is, for example, that it is a surprise; and the only way of accounting for that is that there had been before an expectation. Thus it is that all knowledge begins by the discovery that there has been an erroneous expectation of which we had before hardly been conscious. Each branch of science begins with a new phenomenon which violates a sort of negative subconscious expectation, like the frog's legs of Signora Galvani" (EP2: 88, 1901).

In other words, even though the argumentation is coherent and autonomous, concluded and fruitful *per se*, a question naturally arises, which somehow replicates the question that abduction wants to answer. Why, from the observation of a surprising fact, do we arrive to the formulation of the premiss: "If *A* were, *C* would be a matter of course"? "How do we arrive at *A?*" This question is crucial since it points to the close relationship between novelty and abduction, which is made evident in the appearance of the hypothesis. The answer to this question is therefore crucial to elucidating the relationship between abduction (that is the only ampliative and truly creative reasoning) and novelty.[20]

[20] Answers to this question can come from three different perspectives: (i) phenomenological, (ii) logical-genetical, (iii) ontological. In a sense, they all differ from a strict logical perspective in that they go beyond the scope of logical rules. At this point, I will develop only the second perspective, confining my inquiry to the field of logic. The ontological perspective will be tackled in § 5 of the current chapter, and further explored in third chapter on cosmology. However, since the possibility of three different perspectives has never been proposed in this way, it is relevant to offer a justification, and to touch upon what I have called the phenomenological perspective. According to the first perspective, the possibility of stating a new general rule relies on the phenomenological category of Thirdness. Even if Thirdness is only faintly in a phenomenon (especially when it is really surprising), each phenomenon comprises traces of Thirdness within it. In this way, because of Thirdness, that is because of the tendency to generality intrinsic to all phenomena, it is possible to "retroduce" a phenomenon to a general description. With regard to this, it is worthwhile to refer to Maddalena's clarification of the kind of general description to which Peirce refers. Maddalena argues that "this generality is formed by universal predicates through which it is possible to name and describe the singular phenomenon we want to know. These universals are not conceived here as pure *entes rationis*, that is pure objects belonging to logic; on the contrary they have a mixed nature just as the real universals reckoned by Duns Scotus have. They are real but they are not numerically distinguished as singular objects; they are separated from individuals for formal distinction and not for existence" (Maddalena 2005, 246). In other words, the plausible explanation of a surprising phenomenon is based on that element of generality (Thirdness), already present in the phenomenon itself. However, this interpretation, although underlining a true aspect of Peirce's thought (cf. Part II, Ch. 1 of the present dissertation), is very risky. Indeed, this interpretation tries to explain a logical process by reducing it to another level of investigation, that is to a merely phenomenological level. Accordingly, the consequence would be that abductive reasoning would no longer have logical power and autonomy, explicative relevance and novelty. Abduction would merely stem from a previous, phenomenological state of things. Therefore, I agree with this phenomenological interpretation only insofar as it recognizes the structure of phenomena that allows for abduction, before abduction occurs. This structure can be regarded as the phenomenological condition for abduction, but only insofar as it is a *previous* assumption. I dismiss the idea that the emergence of an explanatory hypothesis is depends entirely and exclusively on phenomenological characteristics. In other words, the fact that abduction works implies the presence of Thirdness at the phenomenological level; however, Thirdness does not account for abduction. On the one hand, this is because abduction, insofar as it belongs to logic, cannot be *explained* and *fully justified* by *phenomenological* Thirdness. On the other, this is because a strong dependence on phenomenological Thirdness would eliminate every possibility of novelty. If Thirdness did entirely account for abduction, then abduction would merely become the act of making explicit a pre-established order.

4.2.1. Musement and Rational Instinct

How do we come to abduction? Or how do we hypothesize "If *A* were true, *C* would be a matter of course…"? To put it another way, how do we abduct abduction?

From a logical-genetical point of view, inquiring into the origin and source of abduction, Peirce explicitly identifies the first step of abductive reasoning as *musement*.[21] To grasp what musement is, it is convenient to start from the account of abduction Peirce gave in 1908. As he puts it,

> The whole series of mental performances between the notice of the wonderful phenomenon and the acceptance of the hypothesis, during which the usually docile understanding seems to hold the bit between its teeth and to have us at its mercy, – the search for pertinent circumstance and the laying hold of them, sometimes without our cognizance, the scrutiny of them, the dark laboring, the bursting out of the startling conjecture, the remarking of its smooth fitting to the anomaly, as it is turned back and forth like a key in a lock, and the final estimation of its Plausibility, – I reckon as composing the First Stage of Inquiry (EP2: 441).

As it is apparent, the passage quoted describes the process of abduction from another perspective. It does not focus on the logical rules of abduction. Peirce does refer to abduction's logical side when he mentions the "final estimation of the Plausibility," but for the most part, the description is devoted to a peculiar moment or phase in which the initial contemplation of a wonderful phenomenon turns into the "bursting out of a starling conjecture." We can match this specific phase, called *musement* by Peirce, with the most relevant as well as obscure point of abduction: the moment of the *arising per se* of the hypothesis "If *A* were true…" How does Peirce describe it? And, again, how do we come to "If *A* were true, *C* would be a matter of course"? Let us first address the former question, concerning the specific description of the moment in which abduction occurs. Peirce defines *musement* as follows:

> Because [*Musement*] involves no purpose save that of casting aside all serious purpose, I have sometimes been half-inclined to call it *rêverie*, with some qualification; but for a frame of mind so antipodal to vacancy and dreaminess, such

[21] On this point, see especially Maddalena 2005, 246-251 and Maddalena 2003.

> a designation would be too excruciating a misfit. In fact, it is Pure Play. Now, Play, we all know, is a livery exercise of one's powers. Pure Play has no rules, except this very law of liberty. It bloweth were it listeth. It has no purpose, unless recreation. The particular occupation I mean, – a *petite bouchée* with the Universes,[22] – may take either the form of esthetic contemplation, or that of distant castle-building (whether in Spain or within one's own moral training), or that of *considering some wonder in one of the Universes or some connection between two of the three, with speculation concerning its cause*. It is this last kind [that] I will call "Musement" […] (EP2: 436, emphasis added).

Musement is therefore an "occupation of mind" (EP2: 436), denoted as pure play. Peirce characterizes pure play (i) as "a livery exercise of one's powers," (ii) with no purpose apart from that of recreation, and (iii) following exclusively the law of freedom. Thus, Peirce indicates that pure play is the source of abduction, or perhaps its initial phase. Moreover, providing an articulated description of the process of discovery, Peirce allows us to determine the *role* of musement. He states:

> It [abduction] begins passively enough with drinking in the impression of some nook in one of the three Universes. But impression soon passes into attentive observation, observation into musing, musing into a lively give-and-take of communion between self and self. If one's observations and reflections are allowed to specialize themselves too much, the Play will be converted into scientific study (EP2: 436).

Thus, the process of discovery starts with an impression and its correlative observation. It then ends in the "lively give-and-take of communication between self and self," that is reflection, from which science arises. musement is situated between these two stages and is indicated as their medium, a medium that allows us to pass from observation to (a new) reflection. It is accordingly the very first and creative phase of abduction, in the sense that it is what makes abduction really creative. But what actually occurs in this phase? Thus far, musement has revealed itself to have a paradoxical nature. On the one hand, it seems to be an evolution of observation, and indeed it

[22] In *A Neglected Argument for the Reality of God* (1908), Peirce names "three Universes of Experience," see Part II, Ch. 3, § 2.4.

originates in observation. On the other hand, it also appears to be a minimal inferential process inasmuch as it makes an hypothesis emerge. It entails that within its essence are intertwined both the maximum of passivity, usually attributed to contemplation or perception, and the maximum of activity, in that musement is a pure expression of the law of freedom. musement is therefore presented as one of the most free and creative acts of the human being, as well as a contemplative state of mind. In addition, musement is not reducible to a mere feeling. It is interpretative, and its proper objects are indeed signs (EP2: 435).

We can thus say that musement is at once contemplative, free, and interpretative. It is contemplative because it begins with the observation of a wonderful phenomenon. It is free because it follows only the law of freedom and has no other aim apart from its own recreation. It is interpretative because its specific activity is to reflect, or establish, connections between objects, signs and mind. In this sense, musement is qualified as rational argument, and it is presented as a rational argument inside abduction.[23] The source of abduction relies therefore on musement, as described here as a contemplative, free and interpretative activity of mind, which comes to a conjecture from the contemplation of a wonderful phenomenon. Upon this conjecture the whole development of the abductive hypothesis is founded.

Peirce did not offer an exhaustive clarification of what kind of signs are the objects of musement, but there is reason to believe[24] that he refers to a logic of icons and indices.[25] In spite of Peirce's failure to specify these signs, it is still worthwhile to ask what makes us choose one conjecture over another. It is not yet clear "what" allows us to read signs in a way or in another, and why the hypotheses reached by us are more often true than false.

So far we studied the initial phase of abduction (that is musement), but if we ask ourselves again "How do we hypothesize 'If *A* were true, *C* would be a matter of course…'?". Or, "How do we abduct abduction?", we find that the answer to that question is properly rational instinct. This rational instinct is precisely the faculty

[23] According to Peirce's definition: "'Argument' is any process of thought reasonably tending to produce a definite belief. An "Argumentation" is an Argument proceeding upon definitely formulated premisses" (EP2: 435).

[24] For instance, cf. EP2: 446; CP: 4.9.

[25] Cf. Parker 1998: 161, Maddalena 2005, 252.

operating in musement.[26] Abductive hypothesis are, in fact, all supported and guided by rational instinct. It is rational instinct that reads those minimal signs present in the play of musement and makes us come to new hypotheses. But what is meant by *rational instinct* and how does it operate?

On the whole, Peirce describes rational instinct as "a way of voluntary acting prevalent almost universally among otherwise normal individuals of at least one sex or other unmistakable part of a race" (EP2: 464-465, 1913). To understand why, on the one hand Peirce uses the term "instinct," to describe this faculty, and why he also defines it as reasonable, we will first consider Peirce's account of instinct, and then the essential characterization of this particular instinct as rational.

Regarding instinct, Peirce explains, "I select the appellation 'instinct' in order to profess my belief that the reasoning-power is related to human nature very much as the wonderful instincts of ants, wasps, etc. are related to their several natures" (EP2: 464, 1913).[27] As he maintains in 1903,

> The Faculty is at the same time of the general nature of Instinct, resembling the instincts of the animals in its so far surpassing the general power of our reason and for its directing us as if we were in possession of facts that are entirely beyond the reach of our senses. It resembles instinct too in its small liability of error; for though it goes wrong oftener than right, yet the relative frequency with which it is right is on the whole the most wonderful thing in our constitution (EP2: 217-18).[28]

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[26] Peirce's opinion on the topic of instinct evolves over time. In this regard, see Maddalena 2003, especially 71-83. Maddalena subdivides Peirce's different conceptions of instinct – intertwined with Peirce's general view of knowledge, relation between theory and practice, and pragmatism – into four stages. The first view of instinct is that of a practical and irrational hope (cf. W3: 285, 1878; EP2: 107, 1901; EP2: 212, 1903); the second one considers it to be a "reasonable insight" (EP2: 217, 1903); the third regards it as a "tendency to guess right" (EP2: 250, 1903); the fourth, and most important phase according to Maddalena, defines it as "rational instinct" (EP2: 446, 1908). Finally, the fifth conception is that of "intellectual instinct" (EP2: 464, 1913). We will limit our analysis to the accounts of "rational instinct," which reflects Peirce's mature thought on the topics of instinct and rationality.

[27] Furthermore, Peirce indicates that "the embodiment of general ideas in theoretical cognition" is the instinctual level proper of human beings. As he puts it, "animals of all races rise far above the general level of their intelligence in those performances that are their proper function, such as flying and nest-building for ordinary birds; and what is man's proper function if it be not to embody general ideas in art-creations, in utilities, and above all in theoretical cognition?" (EP2: 444, 1908).

[28] On this occasion, Peirce notes that the surprising ability to guess right cannot be explained by pure chance. To clarify this point, he offers the following example: "A physicist comes across some new phenomenon in his laboratory. How does he know but *[*that*]* the conjunctions of the planets have something to do with it, or that it is not perhaps because the dowager empress of China has at the same

All the same, this kind of instinct has a peculiarity: it is rational. What does it mean for an instinct to be rational? First, it means that the instinct that qualifies man does not correspond either to a kind of divine power accorded to human being, or to some sort of intuition of truth. As it is defined in musement, rational instinct is a capacity for reading signs that leads us to a strong belief. It is an element of our rationality. Accordingly, it needs to be under our control, not in the sense that we have the power to make it start, or the possibility of modifying its own tendency, but in the sense that it needs us to continuously "give it play, within the bound of reason" (EP2: 444).

The difference between rational instinct and other processes of reasoning, especially the abductive ones, is that *rational instinct* turns out to be their justification. Rational instincts reads signs just as all reasoning does, but its interpretative process, at the basis of abduction, is in its turn based on esthetical and ethical signs.[29] Rational instinct offers a conjecture from this particular reading of signs, confirmed by the satisfaction given by the hypothesis, which is not merely viewed as a sentiment,[30] but rather conceived of as a rational satisfaction (cf. EP2: 449).[31] As Maddalena concludes,

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time a year ago chanced to pronounce some word of mystical power, or some invisible *Finnîy* may be present. Think of what trillion of trillions of hypotheses might be made of which one only is true; and yet after two or three or at the very most a dozen guesses, the physicist hits pretty nearly on the correct hypothesis. By chance he would not have been likely to do so in the whole time that has elapsed since the earth was solidified" (EP2: 217). Here, Peirce is already speaking of instinct in terms of reasonableness. Indeed, he emphasizes as a curiosity the fact that "if you ask an investigator why he does not try this or that wild theory, he will say, 'it does not seem *reasonable*'. […] We call that opinion reasonable whose only support is instinct" (EP2: 218). From these passages, it is clear that, according to Peirce, human instinct is not detached from rationality, but rather it is at the core of rationality. Moreover, even when referring to instinct as "Insight," Peirce does not mean to attribute some intuitive power to our knowledge. As we will see, instinct is always a reading of signs. Therefore, it is always mediated, always rational. Accordingly, Peirce theory of instinct does not conflict with his strong opposition to intuitionism.

[29] Even though Peirce neglected to develop this point fully, in my view it is for this reason that Peirce states that instinct is "to be referred to the same general class of operations to which Perceptive Judgment belong" (EP2: 217). To put it more plainly, rational instinct is not like perceptual judgments in that is beyond our control (as we seen, it needs us to allow it to play). Rather it resembles perceptual judgments in that its interpretative character, like those of perceptual judgments, reads esthetical and ethical characters.

[30] Cf. also EP2: 211. Peirce writes, "The Germans, whose tendency is to look at everything subjectively and to exaggerate the element of Firstness, maintain that the object is simply to satisfy one's logical feeling and that the goodness of reasoning consists in esthetic satisfaction alone. This might do if we were gods and not subject to the force of experience."

[31] Certainly, according to Peirce "this satisfaction cannot be any *actual* satisfaction, but must be the satisfaction which *would* ultimately be fond of the inquiry were pushed to its ultimate and indefeasible issue" (EP2: 450).

> rational instinct is the level at which reason catches the singularity of an object unknown within the general order of signs and that this recognition will occur according to an esthetical and ethical interpretation of the signs themselves (Maddalena 2005, 253).

In this way, rational instinct underscores a continuity that even permits the appearance of new ideas. Let us briefly turn to the sense in which rational instinct allows new ideas to appear, and what this implies for metaphysics.

5. Toward Metaphysics: From Creative Thinking to Metaphysical Continuity

In 1901, Peirce's account of abduction was guided by hope, by the hope that "the fact in hand admit of rationalization by us."[32] With the hypothesis of rational instinct, however a new perspective emerges. By proposing the hypothesis of rational instinct, Peirce no longer founds abduction upon a mere sentiment or irrational hope. Rather, he asserts that abduction is in fact sustained and guided by a rational process, indeed, the esthetical and ethical reading of rational instinct itself. In this account, rational instinct recognizes a general system of signs, and through its particular reading of minimal signs retroduces the surprising phenomenon to it, making the unexpected phenomenon finally comprehensible. As Maddalena maintains: "within abduction there is this rational instinct whose esthetical and ethical reading of singular objects puts them into a general order of signs that makes them understandable" (Maddalena 2005, 254). Accordingly, on the one hand, as we have seen, the creativity and uberty of human logic finds its justification in rational instinct; on the other hand, rational instinct discloses the reality of the flux of causality. More broadly, from an epistemological point of view, the logic of abduction *per se* gives rise to an hermeneutic circle that moves from the surprising

[32] Peirce states: "I now proceed to consider what principles should guide us in abduction, or the process of choosing a hypothesis. Underlying all such principles there is a fundamental and primary abduction, a hypothesis which we must embrace at the outset, however destitute of evidentiary support it may be. That hypothesis is that the fact in hand admit of rationalization, and of rationalization by us. That we must hope they do, for the same reason that a general who has to capture a position, or see his country ruined, must go on the hypothesis that there is some way in which he can and shall capture it. We must be animated by that hope concerning the problem we have in hand, whether we extend it to a general postulate covering all facts, or not. Now, that the matter of no new truth can come from induction or from deduction, we have seen. It can only come from abduction; and abduction is, after all, nothing but guessing. […] Animated by that hope, we are to proceed to the construction of a hypothesis" (EP2: 106-7, 1901).

element *C* to the hypothesis: "If *A* were true, *C* would be a matter of course." This reasoning, which moves from the consequent to the antecedent, implies and refers to a sort of hermeneutic circle. There is a general order of signs to which rational instinct can retroduce the surprising fact. In this way, as Maddalena states, rational instinct "opens the way to recognition of a metaphysical reality" (Maddalena 2005, 254). Metaphysical reality is not an *a priori* postulate, but it is required by the way rational instinct works. Insofar as this kind of general system of signs is recognized by rational instinct, we need to admit its reality.[33] In a sense, the "fundamental and primary abduction" (EP2: 106, 1901) consists in this: reality does exist, not as irrational hope, but as the logical consequence implied and required by the logic of rational instinct *per se*. This position is fully in accordance with the metaphysical realism that Peirce strongly maintains throughout his work.

6. For a Gnoseology and Logic of Novelty

In order to emphasize Peirce's gnoseological account of novelty (within logic), let us review the path followed so far. At the very heart of logic we found abduction, the only reasoning capable of introducing new information and ideas to thought (cf. § 3). At the heart of abduction we found musement, that peculiar state of mind which we interrogated, focusing on the moment when a new hypothesis arises (cf. § 4.2.1). Following this, at the very heart of musement, we finally discovered rational instinct, which guides the process of musement and which reveals that musement can be characterized as logical, rational, and interpretative. These concepts help to 'explain' how something new can enter into thought. They support Peirce's strong belief in the possibility of knowledge, and especially of new knowledge. In addition, they also reveal two important perspectives on the concept of novelty:

1) The standard formula of abduction *per se*, which formalizes the logical process operating every time one discovers something. Indeed, according to Peirce every time someone makes a discovery, every time one brings a new

[33] For an analysis of the differences between Mill's conception of the uniformity of Nature and Peirce's *a posteriori* necessity of metaphysical reality, and for a discussion of the problems abduction causes for the classical view of pramgatism, see especially Maddalena 2005, 251-259.

idea into thought, she must follow the formula of abduction that we have here explored.

2) Rational instinct reveals that we come to new hypotheses not by virtue of a pure intuition of truth, but rather through an esthetical and ethical reading of minimal signs. In this way, rational instinct tries to explain *how* a new hypotheses arise.

It can be seen from this that Peirce's logical theory of abduction, and his proposal of the faculty of rational instinct, really tackle the problem of novelty, admitting the possibility of new ideas and giving an account for their appearance.

It is worthwhile to note that the analysis of § 4, although it addresses the issue of novelty, involves what we have called "the explanatory" side of abduction. That is, they focus on the problem of novelty, but especially on its explanation. In other words, rational instinct remains an answer to the question "how does a new hypothesis arise?" but it especially answers to the question "*how do we form* a new plausible hypothesis?" Novelty and logic in this way exhibit a paradoxical relationship. And this is somehow necessary. This necessity exists, on the one hand, because novelty would vanish away if it was completely explicable (in the sense of being reduced to previous processes), and on the other because, if we confine our investigation to logic, the most we can do is to investigate the *logical* process of "new ideas," the formal rules new ideas follow in order to be formed.

If we refer to the distinction made in § 4.2 between novelty and creativity, Peirce's logic sheds light more on creativity than novelty, inasmuch as Peirce hypothesizes and puts forth the "creative rules" of thought. However, since novelty is what determines something to be creative, we can infer from Peirce's creative rules of thought a synthetic description of what is defined as "gnoseological novelty." First of all, even though it may be trivial, a gnoseological novelty, according to Peirce, is a new idea. Novelty is an increase of knowledge. It is new information, new ideas coming into thought. Second, Peirce's consideration of novelty as new idea, together with his analysis of musement and especially his conception of rational instinct, makes us understand that, for Peirce novelty (gnoseological novelty)[34] is essentially inscribed

[34] See for instance the differences seen in Part II, Ch. 1, with regard to phenomenology.

within an horizon of meaning. This horizon of meaning, this hermeneutical and meaningful circle is not opposed to novelty, insofar as novelty requires this horizon in order to be grasped. In other words, according to Peirce, you cannot have novelty apart from meaning. Gnoseological novelty requires the disclosure of a previous horizon of meaning, if novelty is to appear and be communicated.[35] From a gnoseological point of view, the new information would be merely nothing, and not novelty, if it could not be comprehended by us and conveyed to others.

We will now explore one of the results of Peirce's account of abduction and theory of rational instinct (cf. §5): the recognition of a metaphysical reality. Starting from rational instinct we move toward an assurance of the existence of a metaphysical reality. Thus, in the next chapter we will continue our investigation of the problem of novelty, this time from a metaphysical point of view.

[35] In this regard, it is worthwhile to note that the English *novel*, as well as the Italian *novella*, come from the Latin *novus*, and the Greek *néos*, meaning "new." This evokes the narrative character of novelty, as well as the presumed character of novelty that works in this literary genre.

Chapter 3

Peirce's Cosmological Account of Novelty

On the whole, Peirce's cosmology is the most controversial part of his philosophy. Indeed, when we compare the minute amount of secondary literature on Peirce's cosmology to the vast number of studies on his semeiotic and logic we see that cosmology has often been neglected and even refuted by well-known Peirce scholars.[1] Before focusing on cosmological novelty, therefore, it is first necessary not merely to introduce cosmology, but to demonstrate its importance in Peirce's thought, and to clarify what, precisely is meant by "cosmology.

1. Peirce's Need for Cosmology and Its Definition

1.1. What is Cosmology According to Peirce?

Since the 1950s, several scholars have tackled Peirce's cosmology (cf. especially Gallie 1952, Hausman 1993 and Reynolds 2002),[2] usually identifying it with Peirce's writings from 1883/84 to 1898.[3] Due to the peculiar obscurity of certain cosmological passages and their lack of consistency with the rest of Peirce's writings, cosmology has been called the "black sheep" or "white elephant" (Gallie 1952, 216) of Peirce's thought. Recently, it has even been suggested that Peirce did not have any cosmology at all. Indeed, in 2010, Short sustained that Peirce only had a "program of cosmological inquiry," namely, "to explain the laws of nature as having evolved from chaos" (Short 2010, 522, 521) – a program that in any case was intended to fail. However, before

[1] Cf. for instance Goudge 1950; Gallie 1952; Short 2010a and 2010b.

[2] But also Goudge 1950, Murphey 1961, Esposito 1980, Sini 1981, Hookway 1985, Apel 1987, Corrington 1993, Rosenthal 1994, Anderson 1995, Parker 1998, Fabbrichesi 1986, Sini 2006, Ventimiglia 2008, Short 2010a, 2010b, Dilworth 2011, Guardiano 2011.

[3] Especially from the lecture "Design and Chance" (1884) to the lecture series "Reasoning and the Logic of Things" (1898).

discussing Short's hypothesis in more detail, we must first understand what Peirce's cosmology is, and address the question of whether his cosmology is identifiable with Peirce's thought during his so called "cosmological period."

In order to understand whether or not Peirce really had a cosmology, we should first of all understand what cosmology means. Peirce himself writes that "without a definition of course all the reasoning […] is fallacious" (cf. MS 178 D, 1884). Therefore, we will begin with the definition of cosmology – not just a general one, but Peirce's own definition. Cosmology was, in fact, among the numerous entries that Peirce wrote in the *Century Dictionary* between 1883 and 1909. On pages 1288-89 of the *Century Dictionary*, we can read,

> Cosmology […] 1. The general science or theory of the cosmos or material universe, of its parts, elements, and laws; the general discussion and coordination of the results of special sciences. […] 2. That branch of metaphysics which is concerned with the a priori discussion of the ultimate philosophical problems relating to the world as it exists in time and space, and to the order of nature (Whitney 1889-1891, 1288-89).

From this we see that cosmology is to be understood, on the one hand, as the "general science of the cosmos or material universe," which coordinates the results of special sciences. On the other, more specifically, Peirce defines cosmology as that branch of metaphysics which addresses ultimate philosophical problems "relating to the world as it exists in space and time, and to the order of nature." Also, a few lines below this definition, Peirce emphasizes a difference that is very useful for the present concern. He distinguishes *cosmogony* from *cosmology* in this way: "*Cosmogony* treats of the way in which the world or the universe came to be; *cosmology*, of its general theory, of its structure and parts, as it is found existing" (Whitney 1889-1891, 1289). In this sense, cosmology consists of the general theory and structure of the universe, and cosmogony is only a part of this, and is not equivalent to cosmology. Acknowledging this difference prevents us from confusing cosmogony with cosmology, and helps us to avoid reducing cosmology to cosmogony. Indeed, if apply this differentiation to Peirce's work, we should notice that he employs both terms, and that their distinction makes his general, philosophical aims clearer. For instance, in *The Architecture of*

Theories, Peirce speaks of his work as a "Cosmogonic Philosophy" (W8: 110, 1891), and presents cosmogony as a feasible path for reaching a cosmology. In other words, he aims at achieving an account of the universe's structures and parts by sketching out the universe's coming to be. Moreover, with regard to this cosmogonic program, he adds, "that idea has been worked out by me with elaboration. *It accounts for the main features of the universe as we know it*" (W8: 110, emphasis added). Accordingly, until at least 1891, Peirce had as his goal to build a *cosmology* (that is, to account for the main feature of the universe) by formulating a *cosmogony* (that is, by studying how the universe came to be), as he also confirmed in a letter to Christine Ladd-Franklin in August 1891 (cf. CP: 8.317-18). It is now clearer, by means of this distinction, that the achievement of a successful cosmology corresponds to an exhaustive answer to the question, "Which are the existing universe's structure and parts?" It does not consist merely in an explanation of how the world came to be.

1.2. Metaphysics and Cosmology: A Clarification

At the beginning of Part II, § 1, I presented an outline of Peirce's classification of the sciences. In this outline, cosmology appears as a part of the third branch of Metaphysics. Indeed, the author says in 1903 that

> Metaphysics may be divided into, i, General Metaphysics, or Ontology; ii, Psychical, or Religious, Metaphysics, concerned chiefly with the questions of 1, God, 2, Freedom, 3, Immortality; and iii, Physical Metaphysics, which discusses the real nature of time, space, laws of nature, matter, etc. (EP2: 260).

According to this account, cosmology should be classified under the label "physical metaphysics," the latter being defined as the branch of metaphysics that "discusses the real nature of time, space, laws of nature, etc." Furthermore, the following year, in *Reason's Conscience*, Peirce distinguishes three special branches within *Physical Metaphysics*. They are 1) Cosmology, 2) The Doctrine of Time and Space, 3) The Doctrine of Matter (cf. NEM4: 189). Thus, for Peirce, cosmology is a branch of physical metaphysics, or – better yet – of "mathematical metaphysics," as he specifies in 1898, because it is grounded in "minute diagrammatic reasoning" (RLT: 267, 1898). But what is the specific object of cosmology, if, as Peirce says, it is distinct from the

doctrine of time and space, and from the doctrine of matter? If we consider his entry in the dictionary, along with his latter classification, we can see that, for Peirce, cosmology aims at discovering and expressing the general structures and laws of the universe, upon which the doctrines of time, space, and matter depends, and which are expressed with the degree of generality required by all metaphysics, since cosmology is still a branch of metaphysics (and not of general physics).[4] At the same time, however, given the degree of generality which cosmology requires, there sometimes appears to be overlap or confusion, between metaphysics and cosmology in Peirce's writings. For this reason, we will now examine the relation between metaphysics and cosmology more closely.

Having discussed the definition and classification of cosmology, it is important to note that, for Peirce, cosmology does not simply occupy a formal place in the general outline of metaphysics. On the contrary, it plays a pivotal role in pragmaticism. This is partly due to the fact that cosmology was probably the branch to which Peirce was most committed. In 1898 the author asserted that he came to study philosophy "not at all for the sake of its teaching about God, Freedom, and Immortality, […] but moved rather by curiosity in regard to Cosmology and Psychology" (CP: 4.2). Moreover, Peirce himself admitted that he was the weakest in psychology, and more at home in Cosmology (cf. RLT: 268). However, over and above these elements, for him, cosmology is the line of demarcation between a 'bad' metaphysics and a 'good' one. Peirce asserts this in *What Pragmatism Is*, writing that "instead of merely jeering at metaphysics, like other prope-positivists, whether by long drawn-out parodies or otherwise, the pragmaticist extracts from it a precious essence, which will serve to give life and light to cosmology and physics" (EP2: 339, 1905).

From this we see that cosmology must be understood as a distinctive feature of pragmaticist metaphysics. However, at times, the difference between metaphysics and cosmology can vanish away. On the one hand, the higher degree of generality that belongs to cosmology, and its distinction from a doctrine of time, space, and matter, makes it fade into metaphysics (conceived of as general ontology); on the other, Peirce often defines and describes metaphysics (and sometimes philosophy itself) in a way very similar to his descriptions of cosmology. For instance, he asserts that philosophy

[4] As we will see in Part III, Ch. 3, Whitehead's view of cosmology is very close to this interpretation.

"seeks to explain the universe at large" (W8: 19, 1890), or that metaphysics "has to account for the whole universe of being" (CP: 6.214, 1898).

In reflecting on these statements, one could read them as very general definitions of metaphysics, and then construe cosmology to be the branch of metaphysics that is committed only to the physical account of the universe, but even this interpretation would be inconsistent with Peirce's philosophy. In fact, according to Peirce, cosmology "deeply concerns both physicist and psychist" (RLT: 267). This assertion, which at first glance seems contradictory and confusing, reflects neither inconsistency, nor hesitancy in Peirce's thought. Rather, it discloses his profound conception of cosmology and his non-reductive understanding of the physical universe.

Peirce's cosmology is grounded upon two assumptions: one methodological and the other theoretical. From a methodological perspective, to reach a successful formulation of the very general laws of the universe, his cosmological thought primarily needs to provide a general explanation of law. But what does it mean to provide an explanation of law? According to Peirce, "Law […] requires to be explained, and like everything which is to be explained must be explained by something else" (CP: 6.613, 1893). Therefore cosmology, in order to explain law in general, brings to light the relation of law with something that comes before it, by means of which only we can give reason to law. But the priority of this 'something else' that explains law does not have primacy in a chronological sense; rather, it stands for logical pre-eminence. It is this logical preeminence that is assumed as a method for every kind of explanation and metaphysical inquiry. Peirce goes so far as to say that "evolution is the postulate of logic, itself; for what is an *explanation* but the adoption of a simpler supposition to account for a complex state of things" (W4: 547, 1883-84). As a consequence, to build a cosmology means to find and explain the general laws of nature by referring them to preexistent elements that are simpler and more general than law. In other words, cosmology, or physical metaphysics, does not consist in mere observation, consideration, and organization of physical laws: all that would not be enough to account for laws themselves. And this is the reason why, for instance, at the basis of Peirce's *cosmological* thought we find the triad "Mind, Matter and Evolution" (cf. W8: 110, 1890). This triad indicates the essential factors needed in order to explain the

formation of laws. It also leads us toward Peirce's second basic assumption, the theoretical one, concerning the meaning of the physical universe.

According to Peirce, the physical universe is not understood as a realm of inert matter determined in mechanistic way. It is exactly the *physical universe* that is explained by the triad above mentioned (mind, matter, evolution). Peirce sustains a theory called *objective idealism*, which maintains that "matter is effete mind" (W8: 106, 1891). If matter is effete mind, certainly the physical universe will not be confined to what we usually think of it. Peirce's physical universe is not opposed to mind, as Descartes and others had earlier assumed. Rather, the *physical* universe encompasses mind, feelings, etc. Indeed, Peirce construes matter as a kind of mind – "effete mind."

From this, we can finally understand why the interconnection between cosmology and metaphysics is intricate, complex, and sometimes obscure. If cosmology tackles the metaphysical study of the physical universe, and if the physical universe is no longer Cartesian, then cosmology will develop into metaphysics, and the scope of metaphysics will tend to be the same as that of cosmology.

1.3. Peirce's Need for Cosmology: Its Roots in Logic

We will now turn to the relationship between cosmology and logic in Peirce's writings.[5] In so doing, we will further clarify the connection between cosmology and pragmatism, and the need for cosmology in Peirce's thought. The relationship between cosmology and logic bears some resemblances to the relationship between cosmology and metaphysics, even though the roles of metaphysics and logic, and their places within the classification of the sciences, are undoubtedly different. According to Peirce, "the ideas of philosophy must be drawn from logic, as Kant draws his categories," (W8: 17, 1890) and the same can be said for cosmology. In particular, Peirce pinpoints that "Logic teaches that Chance, Law, and Continuity must be the great elements of the explanation of the universe" (W8: 21, 1890). At the same time, however, Peirce reveals that logic needs cosmology, for the sake of its own validity and efficacy. For instance, he states, "What sort of a conception we ought to have of the universe, how to think of the *ensemble* of things, is a fundamental problem in the theory of reasoning" (W3: 307,

[5] Cf. also Part II, Ch. 2, § 5.

1978). We can see here a sort of double bind, the drawing of a circle that is not vicious, but virtuous: cosmology depends on logic but at the same time logic requires cosmology. How can this be? This question brings to the surface a problem that becomes even more compelling if we consider that Peirce goes so far as to say that "the process of nature and the process of thought are at one" (W8: 17, 1890), or that "the process of nature and the process of reason are one" (CP: 6.581). Again, we find here a peculiar commixture and inter-dependence between logic and cosmology, inasmuch as Peirce identifies the two processes (of nature and reason).

Considering these strong statements from Peirce, it seems unsustainable to suggest that Peirce was only partially interested in cosmology. I have undertaken to analyze apparently enigmatic, even contradictory, claims that Peirce made about cosmology, metaphysics, and logic in order to stress that the apparent inconsistencies are so evident that it is doubtful that they are simple mistakes or indecisions of thought. Instead of inconsistences, they are in fact connections which function as symptoms, as signs of something else, something which challenges our habitual points of view: namely, Peirce's view of philosophy and especially his cosmology.

Consider the matter from another point of view. If you are in semi-darkness and notice something near to you, you immediately have an idea or a guess about what the object is. The closer you come to the object, the more you discover additional aspects of the object. Each of these aspects functions as a hint about the object itself, because it can confirm or contradict the hypothesis you have about the object. If your previous guess is erroneous, what happens is that the hints and data collected seem to be contradictory and paradoxical. We can refer this process to the path followed so far. We might say that Peirce's consideration of cosmology, in its connection with metaphysics and logic, was exaggerated and confused, but this conclusion was presumably connected with our starting hypothesis of what cosmology and the universe are. In other words, it is easy to say that Peirce's cosmology is obscure, but this happens only because the common understanding of *cosmos* and cosmology is so far from Peirce's view of it. However, the hints, that were at first glance obscure, can be seen as an invitation to better grasp the object that faces us: Peirce's philosophy in its complexity.

2. Peirce's Conception of the Universe

Returning to the previous distinction between cosmogony and cosmology, I will briefly discuss not only the "final" opinion supported by Peirce with regard to cosmology, but both Peirce's cosmogonic account of the universe, and his later view of cosmology. Although we can consider the first one (that is cosmogony) as having been gradually dismissed, it is nevertheless useful to introduce it in order to understand Peirce's later conception of *cosmological novelty*.

2.1. Peirce's Description of Cosmogony: The Hyperbolic Evolution of the Universe

In order to give a synthetic overview of Peirce's cosmogony, in this paragraph I will reconstruct Peirce's thought by means of his own words, especially referring to "A Guess at the Riddle" (1887-88), "The Architecture of Theories" (1891), "The Logic of Continuity" (1898), and coeval manuscripts.

On the whole, Peirce maintains that "philosophy requires thorough-going evolutionism or none" (CP: 6.14, 1891). Indeed, Peirce sees evolution as a "postulate of logic; for what is an explanation – the author says – but the adoption of a simpler supposition to account for a complex state of things" (EP1: 218, 1884). Following the same postulate, even the origin and the development of the universe is explained in an evolutionary way.[6] According to Peirce, the development of the universe draws an hyperbolic trajectory:

> The evolution of the world is *hyperbolic*, that is, proceeds from one state of things in the infinite past, to a different state of things in the infinite future. The state of things in the infinite past is chaos, tohu bohu, the nothing-ness of which consists in the total absence of regularity. The state of things in the infinite future is death, the nothingness of which consists in the complete triumph of law and absence of all spontaneity. Between these, we have on our side a state of things in which there is some absolute spontaneity counter to all law, and some degree of conformity to law, which is constantly on the increase owing to the growth of habit. The

[6] It is worthwhile to note that laws within the universe are also subject to evolution. Indeed, Peirce's cosmogony aims especially at their explanation. On this point, among others, see Turley 1977, 64-66, 86-88.

> tendency to form habits or tendency to generalize, is something which grows by its own action, by the habit of taking habits itself growing. Its first germs arose from pure chance (CP: 8.137, 1871).

In particular, if we focus on Peirce's cosmology, the first moment of the universe is "the germinal nothing, in which the whole universe is involved or foreshadowed. As such, it is absolutely undefined and unlimited possibility—boundless possibility. There is no compulsion and no law. It is boundless freedom" (CP: 6.217). From this zero point of the universe, according to Peirce, there proceeds a state of definite qualities. As Peirce describes in *The Logic of Continuity*, "the very first and most fundamental element that we have to assume is Freedom, or Chance, or Spontaneity, by virtue of which the general vague nothing-in-particular-ness that preceded the chaos took a thousand definite qualities" (RLT: 260, 1898).[7] If we recall the analysis of Ch. 1, Part II, we will immediately see how this first phase corresponds to what we called the First Category, now associated with chance: Freedom and Spontaneity.[8] From nothing-ness to a world of pure qualities, from "the womb of indeterminacy" (EP1: 278) to a state of determined potentiality:[9] this is the first phase of the universe, and chance is the only agent here at work.[10]

"The *second* element we have to assume – Peirce continues – is that there could be accidental reactions between those qualities. But these reactions we must think of as *events*. Not that *Time* was. But still, they had all the here-and-nowness of events" (RLT: 260). Even in this case, the description recalls the characteristics of Secondness, and so we can understand the second phase of the universe, the second "flash" (EP1: 278) of the universe, as the appearance of Secondness.

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[7] With regard to this primordial stage of the universe, it is useful to consider Peirce's clarification in *Man's Glassy Essence*: "I long ago showed that real existence, or thing-ness, consists in regularities. So, that primeval chaos in which there was no regularity was mere nothing, from a physical aspect. Yet it was not a blank zero; for there was an intensity of consciousness there in comparison with which all that we ever feel is but as the struggling of a molecule or two to throw off a little of the force of law to an endless and innumerable diversity of chance utterly unlimited" (EP1: 348, 1892).

[8] Cf. RLT 261: "Thus, when I speak of chance, I only employ a mathematical term to express with accuracy the characteristic of freedom or spontaneity."

[9] Peirce defines it also as "Platonic world" (RLT: 260).

[10] With regard to the contemporary presence of all three categories, even in these early stages, cf. Parker 1998, 210.

After this "existing universe with all its arbitrary Secondness" (RLT: 258) comes to the fore, Thirdness begins to appear. Peirce states: "then there would have come other successions ever more and more closely connected, the habits and the tendency to take them ever strengthening themselves, until the events would have been brought together into something like a continuous flow" (EP1: 278). Another way of describing the appearance of Thirdness as follows. In Peirce's own words:

> Pairs of states will also begin to take habits, and thus each state having different habits with reference to the different other states, will give rise to bundles of habits, which will be substances. Some of these states will chance to take habits of persistency, and will get to be less and less liable to disappear; while those that fail to take such habits will fall out of existence. […] In fact, habits, from the mode of their formation necessarily consist in the permanence of some relation, and therefore on this theory, each law of nature would consist in some permanence, such as the permanence of mass, momentum, and energy (EP1: 279).

Accordingly, we can see how Peirce tries to explain the origin of the universe according to his triad of categories, in a perspective that we might define a "trichotomic cosmo-genesis." Peirce's cosmology develops indeed according to his three categories, each representing a stage of the development of the universe: from the zero point of nothingness appears Firstness, then Secondness, and finally Thirdness. "Chance is First, Law is Second, the tendency to take habits is Third. Mind is First, Matter is Second, Evolution is Third" (EP1: 297). In the last part of *The Architecture of Theories*, Peirce offers a brief description of these three phases:

> It would suppose that in the beginning, – infinitely remote, – there was a chaos of unpersonalised feeling, which being without connection or regularity would properly be without existence. This feeling, sporting here and there in pure arbitrariness, would have started the germ of a generalising tendency. Its other sportings would be evanescent, but this would have a growing virtue. Thus, the tendency to habit would be started; and from this with the other principles of evolution all the regularities of the universe would be evolved (EP1: 297).

Now that I have introduced the main characteristics of Peirce's cosmogony, we can easily identify a difficulty, already intrinsic to this cosmogonical kind of perspective.

Generally speaking, cosmogony investigates the origin of the universe. In this case, we face a genetic description of the origin of the universe. We described a sequence of flashes, moments or stages which defines the beginning of the universe. However, this interpretation of Peirce's cosmology has a great deficiency. We tend to consider the phases mentioned as chronologically ordered, while in fact they are not. Indeed, according to Peirce, even time takes its origin from these moments. If so, how can we conceive of this "vague and figurative" (EP1: 279) theory of the origin of the universe? How can we understand it while avoiding regarding it as a genetic process. How do we understand cosmogony and situating it in time? To answer, we must stress the fact that the relation among categories is to be understood not from a chronological perspective, but rather from a logical one. But what does this mean? In order to construe Peirce's idea of cosmogony correctly, we can use the diagrammatic example he gave in the eight lecture of the *Cambridge Conferences* (1898).

2.2. Peirce's Diagrammatic Support for Cosmogony

Peirce returns to his cosmology in the 1890s. The lecture *The Logic of Continuity* is almost entirely devoted to cosmology, with special attention given to the concept of continuity. In this lecture, Peirce both confirms his previous conception of cosmology,[11] and offers new insights into his earlier arguments, through what we can call "diagrammatical support."

The diagrammatical support that Peirce proposes consists of the example of a "clean blackboard" as "a sort of Diagram of the original vague potentiality, or at any rate of some early stage of its determination" (RLT: 261). He writes that

> This blackboard is a continuum of two dimensions, while that which it stands for is a continuum of some indefinite multitude of dimensions. This blackboard is a continuum of possible points; while that is a continuum of possible dimensions of quality or something of that sort. There are no points on this blackboard. There are no dimensions in the continuum. I draw a chalk line on the board. This discontinuity is one of those brute acts by which alone the original vagueness could have made a step toward definiteness. There is a certain element of continuity in

[11] We have referred to this essay earlier in § 2.1.

> this line. Where did this continuity come from? It is nothing but the original continuity of the black board which makes everything upon it continuous. What I have really drawn there is an oval line. For this white chalk-mark is not a *line*, it is a plane figure in Euclid sense, – a *surface*, and the only line [that] is there is the line which forms the *limit* between the black surface and the white surface. Thus discontinuity can only be produced upon the blackboard by the reaction between two continuous surfaces into which it is separated, the white surface and the black surface. The whiteness is a Firstness, – a springing up of something new. But the boundary between the black and white is neither black, nor white, nor neither, nor both. It is the pairedness of the two. It is for the white the active Secondness of the black; for the black the active Secondness of the white (RLT: 261-62).

This example aids us in better understanding the description of cosmology analyzed in § 2.1, and the role of categories as logical moments. Each category is equally necessary if we are to grasp Peirce's explanation of the universe, that is to envisage how the universe "developed" from vagueness. The passage quoted above allows us to understand especially "nothing-ness," Firstness and Secondness. The blackboard is "nothing-ness," a continuum of qualities, but only insofar as is purely undetermined, purely general, the pure realm of potentiality. Nothing exists in it, but everything is, potentially. Firstness is the whiteness of the chalk-mark, or better yet whiteness *per se*. It is "a springing up of something new," and it is "essentially indifferent as to continuity." Indeed, it "lends itself readily to generalization but is not in itself general" (RLT: 262). Secondness is the "boundary between the black and white," an irreducible duality. For its essence, "the limit between the whiteness and blackness is essentially discontinuous, or antigeneral. It is insistently *this here*" (RLT: 262). The universe seems therefore to pass from a state of vague potentiality to that of definiteness, but the process is not yet complete. Peirce states that "we see the original generality like the ovum of the universe segmented by this mark. […] No further progress beyond this can be made, until a mark will *stay* for a little while; that is, until some beginning of a *habit* has been established by virtue of which the accident acquires some incipient staying quality, some tendency toward consistency" (RLT: 262). A habit that begins to be established corresponds to a mark that starts to stay. In this way, a tendency to generalization develops, and we can refer to this as Thirdness. "This habit is a generalizing tendency, and as such a generalization, and as such a general, and as such a

continuum or continuity" (RLT: 262). Thirdness is not the original continuity, though it must have its origin in it, because continuity is always "inherent in potentiality" (RLT: 262).

2.3. The Keystone of Synechism[12] *and Peirce's Cosmological Continuity*

Besides the characterization of the three categories now discussed, one of the main tenets of this essay – and an essential one for Peirce's thought in general – concerns the concept of continuity. As we have read, Peirce argues for the preeminence of the original vagueness of continuum; that is, he affirms the centrality of the realm of potentiality, describing the latter in terms of a continuity which precedes everything and allows for everything either in particular, that is in its individuality, or in general, that is in continuity with the other entities. Peirce, on the one hand, presents the clean blackboard as the "original vague potentiality," as "a continuum of possible dimension of qualities" (RLT: 261), and, on the other hand, highlights how every continuity stems from this original continuity of potentiality. For instance, Peirce suggests we draw a new line on the blackboard, and argues that

> the new curve, although it is new in its distinctive character, yet derives its continuity from the continuity of the blackboard itself. The original potentiality is the Aristotelian matter or indeterminacy from which the universe is formed (RLT : 263).

Accordingly, the continuity of the curve (or whatever we draw on the blackboard) derives its own continuity from this original potentiality. This statement is remarkable since it emphasizes the absolute preeminence of continuity in a cosmological perspective. Moreover, if the entire lecture – as suggested by the title "*The Logic of Continuity*" – aims to find evidences and arguments for the concept of continuity, then the concept of continuity itself represents the keystone of all Peirce's philosophy.[13]

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[12] Cf. Esposito 2007. Peirce himself wrote to William James in 1902 that the idea of continuity is "the keystone of the arch" (CP: 8.257).

[13] Before the *Cambridge Conferences* of 1898, among others cf. especially *The Law of Mind* (EP1: 312-333, 1892).

Peirce's metaphysical standpoint is indeed that of *synechism*,[14] which Peirce defines in Baldwin's *Dictionary of Philosophy and Psychology*, as "[t]hat tendency of philosophical thought which insists upon the idea of continuity as of prime importance in philosophy and, in particular, upon the necessity of hypotheses involving true continuity" (CP: 6.169, 1902). But what does this primacy mean? In particular, what does this primacy mean when compared with other philosophical perspectives? If, for instance, "*materialism* is the doctrine that the matter is everything, *idealism* the doctrine that ideas are everything, *dualism* the philosophy which splits everything into two," then *synechism* is "the tendency to regard everything as continuous" (EP2:1).

From these few quotes, the complexity of the concept of synechism emerges, as do the implications that this philosophical perspective has for every field of inquiry. Moreover, it should be noted that Peirce modifies his view of continuity many times as his thought developed.[15] For the present purpose of introduction, it will be sufficient to state the general claim of Peirce regarding continuity, and briefly touch upon what this means for the general description presented in §§ 2.1, 2.2. Concerning his general claim, we have read that, according to Peirce, everything is continuous. In particular, with respect to the constitution of the universe, *Synechism* means (i) on a macrocosmic level, that every "phase" of the universe is continuous with one another, (ii) on a microcosmic level, that every particle, or bit of the universe is continuous with one another, and – consequently – (iii) that everything in between those levels (above all mind and matter)[16] is continuous.

Furthermore, from a *synechistic* perspective, it makes no sense to seek for an ultimate, constitutive element of the universe. For instance, in 1902, Peirce indicates that a synechist would never agree with atomism, that is with the hypothesis that matter is composed of atoms, all spherical and exactly alike. Even at the level of mere

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[14] The author explains the etymology as follows: "The word *synechism* is the English form of the Greek {synechismos}, from {synechés}, continuous. For two centuries we have been affixing -ist and -ism to words, in order to note sects which exalt the importance of those elements which the stem-words signify" (EP2: 1, 1893).

[15] Especially in the last decades, many scholars have analyzed continuity and the evolution of this concept in Peirce's thought, from a mathematical, as well as metaphysical, perspective. Cf. in particular Zalamea 2012; Havenel 2008; Maddalena 2009, 193-223.

[16] As is notorious, this leads to the doctrine of "objective idealism." For a synthetic illustration of it, cf. among those scholars quoted in § 1.1, especially Dilworth 2011 and Guardiano 2011.

hypothesis, atomism would conflict with synechism because, in a synechistic opinion, the hypothesis of atomism would be an attempt to explain phenomena through an "absolute inexplicability" (CP: 6.173, 1902). Similarly, Peirce also considers the case of consciousness, to illustrate why synechism necessarily refuses these sorts of hypotheses. He writes,

> So the synechist will not believe that some things are conscious and some unconscious, unless by consciousness be meant a certain grade of feeling. He will rather ask what are the circumstances which raise this grade; nor will he consider that a chemical formula for protoplasm would be a sufficient answer. In short, synechism amounts to the principle that inexplicabilities are not to be considered as possible explanations; that whatever is supposed to be ultimate is supposed to be inexplicable; that continuity is the absence of ultimate parts in that which is divisible; and that the form under which alone anything can be understood is the form of generality, which is the same thing as continuity (CP: 6.173).

When we focus on the last lines of this passage, we realize that synechism is not proposed mainly as "an ultimate and absolute metaphysical doctrine" (CP: 6.173), but rather as a principle that helps us discern between good and bad hypotheses. In this sense, synechism is viewed as the only theory that does not block the road of inquiry (cf. CP: 1.170, c. 1897). For this reason, the approach of *synechism* is also adopted in Peirce's cosmology, with the specific hypothesis of the continuity of original potentiality. A continuity of potentiality is at the basis of and prior to every other kind of continuity in nature. This helps us to understand why, in 1898, Peirce emphasizes the role of continuity more strongly than the role of categories, which in a sense are only subsidiary to continuity.

2.4. Late Cosmological Thought and Categories

In § 2.1 and § 2.2, we discussed categories with reference to cosmogony, and disclosed their fundamental role in the description of the beginning of the universe. In § 2.3 we saw that, for Peirce, the primacy of continuity represents the fundamental cosmological hypothesis, also in comparison to the three categories. Speaking generally, therefore, we can affirm that the universe is on the whole continuous, and that, more

particularly, we can distinguish three different elements within it: Firstness, Secondness, and Thirdness; Chance, Law and Evolution.

In addition, we have pinpointed the categories as the three fundamental factors that describe Peirce's cosmogony, not merely in the sense of representing different, chronological phases, but rather in constituting different and necessary logical moments. Peirce refers to these, in *The Architecture of Theories* (1891), as three different modes of being, whose characterization barely reflects those analyzed in Chapter 1, when we analyzed the phenomenological categories. Peirce writes, "First is the conception of being or existing independent of anything else. Second is the conception of being relative to, the conception of the reaction with, something else. Third is the conception of mediation, whereby a first and second are brought into relation" (EP1: 296). However, insofar as Peirce is committed to building a *cosmogony* (i.e., until the end of 1890s), he adopts categories at times as progressive phases of the development of the universe, and at other times as different but correlated structures of the universe. For instance, in *The Architecture of Theories*, he still associated each category with a specific era of the universe. The first category concerns the origin of the world; the second category concerns the end of things; the third category concerns the process mediating the origin and the end of the universe (cf. EP1: 296). As we anticipated in § 2, this cosmo-genetical view of the universe exactly corresponds to Peirce's view of cosmology before 1900: that is, to an interpretation of cosmology in terms of *cosmogony*.

From 1900 onwards, however, Peirce began to dismiss his *cosmogony*, and did not return to his earlier formulation of an evolutionary cosmogony. Nevertheless, he did not abandon his idea of *cosmology*, which remains at the very heart of his pragmaticism (cf. § 1.3 of the present chapter). Also, it is remarkable that in the Harvard Lectures on phenomenology (1903), Peirce appeals to categories, defining them "important metaphysico-cosmical elements," (EP2: 164) and stressing again that peculiar coincidence between metaphysics and cosmology, as well as the multifaceted nature of his categories. Categories do indeed have different applications in various fields of philosophy. Despite these different applications, however, categories maintain their basic characters throughout their different applications. It is sufficient to consider that,

in 1908, Peirce continues to construe categories as modes of being. In 1908, he resembles his earlier statements of 1891, writing that

> [T]here are these three modes of being: first, the being of a feeling, in itself, unattached to any subject, which is merely an atmospheric possibility, a possibility floating *in vacuo*, not rational yet capable of rationalization; secondly, there is the being that consists in arbitrary brute action upon other things, not only irrational but anti-rational, since to rationalize it would be to destroy its being; and thirdly, there is living intelligence from which all reality and all power are derived; which is rational necessity and necessitation.
>
> A feeling is what it is, positively, regardless of anything else. Its being is in it alone, and it is a mere potentiality. A brute force, as, for example, an existent particle, on the other hand, is nothing for itself; whatever it is, it is for what it is attracting and what it is repelling: its being is actual, consists in action, is dyadic. That is what I call *existence*. A reason has its being in bringing other things into connexion with each other; its essence is to compose: it is triadic, and it alone has a real power (CP: 6.342-43, 1908).

According to this later analysis, the universe consists of a) Firstness, conceived of as mere potentiality, feelings or "atmospheric possibilities;"[17] b) Secondness as actuality and existence, c) Thirdness as reason and rational connected-ness. These are the constitutive elements of the universe. Therefore, we can interpret these metaphysico-cosmical categories as components of Peirce's cosmology. In other words, we discover that cosmological thought was never dismissed by the author, even after the so-called "cosmological period." Moreover, the tripartition of the universe, and therefore the irreducibility of categories, is so emphasized by Peirce that he goes so far as to say, in *A Neglected Argument for the Reality of God*, that the universe is not one, but rather that there are *three* universes of experience, corresponding to the three categories, described in the same way as in the previous citation.[18] The character of each universe of

[17] We will see in Part III, Ch. 3 that Firstness is surprisingly comparable to Whitehead's eternal objects.

[18] Cf. EP2: 435. "Of the three Universes of Experience familiar to us all, the first comprises all mere Ideas, those airy-nothingness, the fact that their Being consists in mere capability of getting thought, not in anybody's Actually thinking them, saves their Reality. The second Universe is that of the Brute

experience is absolutely unique when compared with the others; however, they are not isolated universes. They are connected. The Third Universe (of Thirdness) consists indeed in "the active power to establish connections between different objects, especially between objects in different Universes" (EP2: 435). By virtue of these connections, it becomes clear that Peirce's cosmology still endorses continuity, as well as the irreducible categories. However, the latter are no longer described as different, chronological moments in the genesis of the universe, but as the perpetual, constituent, factors of it. At all times they are present in the universe, different from each other in mode and function, and encompassing all the dimensions of the universe. This hypothesis echoes Peirce's "guess at the secret of the sphinx" as he says that "three elements are active in the world, first, chance; second, law; and third, habit-taking" (EP1: 277, 1887-88).

On the whole, if we have understood the categories well, we can conclude that Peirce envisions a dynamical world, where both potentiality and actuality find their place, as well as regularity and reason, the latter being presented by Peirce as the "power to establish connections." Reason represents the medium between potentiality and actuality, pure qualities and mere facts, feelings and brute reactions.

3. Novelty and Cosmology

In a universe, a world of preeminent continuity such as the one described above (cf. § 2.3), is there any place for novelty? How can we understand novelty in such a world? Let us now explore the specific topic of cosmological novelty, taking into account Peirce's different approaches to this branch of metaphysics. From the previous descriptions of Peirce's cosmology, we have seen that Peirce strongly supports chance, originality or freedom in the universe, and to this extent we can say that he supports cosmological novelty. But how does he describe novelty in detail? Moreover, how is

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Actuality of things and facts. I am confident that their Being consists in reactions against Brute forces, notwithstanding objections redoubtable until they are closely and fairly examined. The third Universe comprises everything whose Being consists in active power to establish connections between different objects, especially between objects in different Universes. Such is everything which is essentially a Sign, – not the mere body of the Sign, which is not essentially such, but, so to speak, the Sign's Soul, which has its Being in its power of serving as intermediary between its Object and a Mind Such, too, is a living consciousness, and such the life, the power of growth of a plant. Such is a living institution, – a daily newspaper, a great fortune, a social 'movement'."

this view compatible with Synechism? We will address these questions first by analyzing the role of chance in Peirce's cosmogony.

3.1. Novelty in the "Cosmological Period": Chance and Tychism

As mentioned above,[19] Peirce regards chance to be a real factor in the universe.[20] As he states in *One, Two, Three: Kantian Categories*, "We must suppose an element of absolute chance, sporting, spontaneity, originality, freedom, in nature" (EP1: 243). Chance therefore corresponds to an irreducible spontaneity, originality, or freedom present in nature. Chance is not a product of our ignorance (cf. CP: 6.612, 1893), nor it is a mere exception to law. Indeed, for Peirce, chance does not merely account for exceptional events or phenomena. On the contrary, Peirce suggests that chance is the only satisfactory explanation of law itself. Chance is not relative to – that is, dependent on – law. Rather, it is law that needs chance in order to be explained. For this reason, the notion of chance is regarded as *absolute* by Peirce, who writes that "absolute chance is a factor of the universe," and not subsidiary to law or regularity (RLT: 260).

However, Peirce's emphasis on chance is not only due to the fact it represents the best explanation for law. In replying to Carus's[21] objections, Peirce further clarifies his conception of chance by summarizing the arguments of *The Doctrine of Necessity Explained* as follows:

> I offered four positive arguments for believing in real chance. […]
>
> 1. The general prevalence of growth, which seems to be opposed to the conservation of energy;
>
> 2. The variety of the universe, which is chance, and is manifestly inexplicable;

[19] Cf. § 2.1 of the present chapter.

[20] Cf. especially *Design and Chance* (1883-84), EP1: 215-224; and the whole series published in *The Monist* between 1891 and 1893, EP1: 285-372.

[21] Paul Carus, editor of *The Monist*, in July and October 1892 published two articles strongly objecting to Peirce's cosmological view, and in particular to his doctrine of chance. In this section I will limit the discussion to Peirce's account of chance within his cosmogonical period.

3. Law, which requires to be explained and, like everything that is to be explained, must be explained by something else – that is, by non law or real chance;

4. Feeling, for which room cannot be found if the conservation of energy is maintained (CP: 6.613, 1893).[22]

For Peirce, then, chance accounts for growth, variety, feeling, and the appearance of law itself. Thus, Peirce's interpretation of the universe is the opposite of a necessitarianist or materialistic one, not because Peirce refutes law *per se*, but because the principle of growth stands above mechanical laws (cf. W8: 155, 1892; W8: 18, 1890). In other words, according to Peirce these four arguments represent the reasons why it is reasonable to admit the existence of absolute chance, and consequently why he supports Tychism, "the doctrine that absolute chance is a factor of the universe" (RLT: 260).[23]

If it is true that Peirce claimed the primacy of continuity (cf. § 2.3), we need at least to clarify how it is possible to sustain absolute chance and continuity at once. Before analyzing the relationship between tychism and synechism in detail (cf. in § 3.2), we must first focus on chance, its connection to novelty, and its place within Peirce's cosmogony.

Without any doubt, Peirce makes room for novelty in his universe by means of the concept of chance. Insofar as there is absolute chance in the universe, the universe

[22] For a critical study of these different arguments and their developments through time, see Reynolds 2002, 144-152. After his precise analysis, Reynolds pinpoints six possible interpretations of Chance: 1) independence of events, 2) random distribution, 3) diversity or variety, 4) contingency or freedom from law, 5) violation of law (imprecision), 6) feeling, spontaneity, vitality (Reynolds 2002, 152). Given the character of the present section, and therefore its limitation to the elaboration of cosmogony, I will not consider Reynolds's points 1 and 2, but will mainly refer to his points 3 to 6, though from a slightly different perspective. My thesis is that chance is introduced by Peirce to account for all these phenomena, but that until 1900, the role of chance is on the whole emphasized only at the beginning of the universe, and more particularly – even if it never vanishes completely throughout evolution – it is destined to decrease, in a way inversely proportional to the increase of regularity.

[23] Cf. also *The Law of Mind* (EP1: 312, 1892): "In an article published in *The Monist* for January 1891, I endeavored to show what ideas ought to form the warp of a system of philosophy, and particularly emphasized that of absolute chance. In the number of April 1892, I argued further in favor of that way of thinking, which it will be convenient to christen *tychism* […]. I have begun by showing that *tychism* must give birth to an evolutionary cosmology, in which all the regularities of nature and of mind are regarded as products of growth, and to a Schelling-fashioned idealism which holds matter to be mere specialized and partially deadened mind."

cannot be understood as static, nor can its evolutionary trajectory be described as a mechanical development of fixed laws. The universe's structure allows for novelty. Its continuous growth and variety attests to the presence of novelty, or – in other words – to a peculiar originality, freedom and spontaneity, all characteristics that recall chance and Firstness. In Peirce's *cosmogony*, however, chance is not simply characterized as Firstness. Peirce does not confine himself to offering an alternative to a deterministic picture of the world. We have already highlighted how he tried, until the end of 1890s, to develop a cosmogony (cf. § 2.1), and so we see that chance, in its being a matter of Firstness,[24] represents also the *origin* of the universe, or at least the *earliest phase* of it. For what describes the initial moment of the arbitrary sporting of pure feelings better than chance?[25] Absolute chance, freedom, spontaneity, novelty – this is the nothing-ness from which the world and order have evolved, according to Peirce. This differs from the concept of *creatio ex nihilo*. Nothing-ness means that *no-thing* properly was, nothing really had *existence*, nothing was "from a physical aspect," (EP1: 348). Only chance, feeling, was. To this extent, we can even dare to say that novelty *is* nothing-ness, pure indeterminacy, where the meaning of 'indeterminacy' is not solely negative ('not determined'), but represents a proper mode of being – that of potentiality. Nothingness corresponds to the vagueness of potentiality, "the potentiality of everything in general" (RLT: 258). For this reason we can compare this state of nothingness to radical novelty.

If this original vague potentiality represents novelty, and if this state refers to the initial phase of the universe (before time and things started to exist), how do we conceive of chance in the later stages of the universe?

According to Peirce's hyperbolic idea of the universe's development, the universe is "progressing from a state of all but pure chance to a state of all but complete determination by law" (EP1: 243, 1885). Consequently, does it follow that chance will ultimately vanish away with the progressive development of the universe? With respect to this question, as I mentioned in § 2.1, Peirce states that "the state of things in the infinite past is chaos, tohu bohu, the nothing-ness of which consists in the total absence of regularity. The state of things in the infinite future is death, the nothingness of which consists in the complete triumph of law and absence of all spontaneity" (CP: 8.137,

[24] We will see in § 3.2 why this is an essential clarification.

[25] Cf. also EP1: 272, 1887-88.

1871). So, at first glance, it seems that for Peirce chance is continuously decreasing throughout the development of the universe, until the final state in the infinite future, where the triumph of law will eliminate the factor of chance. In contrast to this view, however, Peirce later says that

> We look back toward a point in the infinitely distant past when there was no law but mere indeterminacy; we look forward to a point in the infinitely distant future when there will be no indeterminacy or chance but a complete reign of law. But at any assignable date in the past, however early, there was already some tendency toward uniformity; and at any assignable date in the future there will be some slight aberrancy from law (EP1: 277, 1887-88).

Thus we see that, according to Peirce's later thought, chance is not going to disappear at some point in the future. We can say that chance *would* disappear, if the universe were at its very final moment, but from the present moment until the infinitesimal moment before the end of the universe there will be at any time a "slight aberrancy from law," i.e., an element of chance. However, the tendency to chance will be less than it was at the beginning of the universe.

To sum up, in Peirce's cosmogony chance was preeminent at the initial phase of the universe, and is decreasing both in power and quantity in the intermediary phases of the universe. It will finally cease when the universe's development likewise ceases. Accordingly, cosmological novelty follows the hyperbolic trajectory of the universe. There is a maximum of novelty at the beginning of the universe that is progressively diminishing until the universe's end.

How can we reconcile this view of novelty with that striking evidences of growth and variety that always surround us? Similarly, until now, we might have thought that chance would gradually vanish to give room to continuity, yet Peirce never conceives of continuity as an alternative to chance, but rather as co-essential. As we saw with regard to phenomenology, continuity (Thirdness) encompasses Firstness without reducing it. Indeed Thirdness needs Firstness in its irreducibility. At the cosmological level, the problem seems to lie in the relationships between continuity and novelty, law and indeterminacy, synechism and tychism, Thirdness and Firstness.

3.2. Novelty and Categories: The Spontaneity of Firstness between the Necessity of Secondness and the Continuity of Thirdness

In trying to solve the problem of novelty, as it is appears in Peirce's cosmogony, we can appeal to the distinction at the basis of the present chapter: the difference between cosmogony and cosmology. If it is true that Peirce abandons his cosmogony but not his cosmology, then we will move on to Peirce's late cosmological thought in order to see whether he addresses this problem of novelty and chance differently. Accordingly, we will ask: how does Peirce construe novelty in regard to his metaphysico-cosmological categories?

The answer is indeed quite simple. Given that spontaneity, freshness, originality, and therefore novelty, are a matter of Firstness, and insofar as Peirce strongly maintains the coessentiality of the three categories, and their ubiquity in every phenomenon whatsoever,[26] it follows that novelty is not going to decrease throughout the development of the universe. Every phenomenon will always contain, and reverberate, novelty. We can discern three elements at every stage of the universe: the spontaneity of Firstness, the existential necessity and brutality of Secondness, and the regularity and continuity of Thirdness. As we detect categories at the "microcosmic level," that is at the level of every particular phenomenon, we are similarly able to detect categories at the macrocosmic level of the universe. The universe shows spontaneity, necessity, and regularity at the maximum level of generality. This differs from similar concepts in Hegel, for whom the dialectical movement of history sees the emerging of the preeminence of Thirdness as the truth of Firstness and Secondness, where Firstness and Secondness are definitely overtaken, *aufgehoben*. In this way, Peirce's insistence on categories as different modes of being allows us to think of novelty as an essential element of the structure of the universe, a potentiality that can never be fully actualized.

It must be admitted, however, that to a closer consideration the latter description of Peirce's concept of cosmological novelty through categories exhibits some problems concerning the consistency of Peirce's cosmology. Indeed, on the one hand universal categories account for the continuous growth and variety of the universe, but, on the other hand, they can lead to the refutation of the dynamical development of the universe

[26] Cf. § 2.4 of the present chapter and, for a detailed analysis of category the first, Part II, Ch. 1.

by making such development inconceivable. If at any time there are at once Firstness, Secondness and Thirdness, how can we speak about the evolution of the universe? Is it possible to comprehend the development of the universe from this categorical perspective? In other words, by accepting Peirce's cosmological categories, do we need to abandon Peirce's evolutionary view of the universe? If not, how are we to conceive of it?

The matter is quite controversial, and Peirce himself does not elaborate on this point. His standpoint indeed may seem confused in this regard. For instance, in a passage written in 1906, Peirce at first glance seems to refute tychism and chance.[27] In a passage written in 1909, however, Peirce explicitly re-introduces pure chance as the only possible explanation of a genuine triadic relationship, returning again to a cosmogonical scenario.[28] In both these cases, the emphasis is upon the preeminence of chance as a psychical force, in opposition to the deterministic world of law. For this reason, it is misleading to look at these statements for an explanation of Peirce's later account of the dynamical evolution of the universe. In contrast, the metaphysical account of categories provides an explanation of evolution *per se*.

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[27] In MS 292 (1906), Peirce says: "I intend […] to revise my tychistic hypothesis. I still believe that the universe is constantly receiving excessively minute accessions of variety; but instead of supposing, as I formerly did, that these are causeless (chances), I think there is sufficient ground for supposing that they are due to psychical action upon matter." It seems therefore that Peirce abandons chance and tychism. However, Peirce stresses upon the fact that the origin of variety is not causeless, but the result of psychical action upon matter. And we have already noticed that, according to Peirce, "chance is but the outward aspect of that which within itself is feeling" (CP: 6.265). Consequently, we cannot say that Peirce repudiates tychism, at least in the way we previously expressed it; he rather remarks on the character of chance: not as absence of cause, but as active force. Mind is indeed a matter of Firstness, as is chance.

[28] "In short, the problem of how genuine triadic relationships first arose in the world is a better, because more definite, formulation of the problem of how life first came about; and no explanation has ever been offered except that of pure chance, which we must suspect to be no explanation, owing to the suspicion that pure chance may itself be a vital phenomenon. In that case, life in the physiological sense would be due to life in the metaphysical sense. Of course, the fact that a given individual has been persuaded of the truth of a proposition is the very slenderest possible argument for its truth; nevertheless, the fact that I, a person of the strongest possible physicistic prejudices, should, as the result of forty years of questionings, have been brought to the deep conviction that there is some essentially and irreducibly other element in the universe than pure dynamism may have sufficient interest to excuse my devoting a single sentence to its expression" (CP: 6.322, 1909). In this case, it seems that Peirce still appeals to his cosmogonic hypothesis of pure chance in order to explain the arise of categories. As he emphasized, pure chance is indicated as a psychical force (opposed to his physicistic prejudices). In this sense, pure chance would be collocated at a higher degree of generality of categories. Everything, categories included, would be subject to it.

Generally speaking, according to Peirce, the triads of categories allow the universe to be dynamical through their mutual and necessary connection, together with their irreducible difference. More particularly, if we examine the development and evolution of the universe, from a categorical perspective we need to focus only on Thirdness. In 1890, indeed, Peirce made Thirdness correspond to Evolution (cf. W8: 110, 1890), for a universe of pure Firstness would be a world of pure chance and arbitrariness. A universe of mere Secondness would be a deterministic universe. Evolution is a matter of Thirdness, and it is therefore Thirdness that we must direct our inquiry. Following this line of reasoning, we should modify the previous question. Instead of asking, "Is Peirce's categorical account of the universe still evolutionary?" we should ask, "How does Thirdness depict evolution?"

From this brief analysis, we face thus two different questions: 1) How is novelty to be understood with regard to Peirce's categorical cosmology? and 2) How does Peirce conceive of evolution according to Thirdness? The response to the first question has been already offered in the present section. Just as in the case of phenomenology, novelty is chance, and chance is a matter of Firstness. Accordingly, it is Peirce's conception of the category of Firstness that, after Peirce's cosmogony, allows for the presence of novelty in the universe and signifies that novelty is not an element that will progressively extinguish.

In contrast to this, the second question brings to the surface an important difference, when compared to Peirce's idea of cosmogony *per se.* The development of the universe was previously described by the hyperbolic evolution from a phase of pure chance to that of pure regularity, and so Peirce's way of explaining the universe consisted in describing its progressive phases. Now, on the other hand, according to categories the evolution of the universe no longer concerns Firstness or Secondness. It is only a matter of Thirdness.

By answering the second question in this way, we find ourselves in front of a new issue. From a consideration of categories on the whole, we are led to focus just on Thirdness, and on the form of evolution it supports. What kind of evolution is this? Furthermore, if evolution is a matter of Thirdness, does Thirdness allow for novelty? Paradoxically, the best way to explain Peirce's view of evolution according to Thirdness, is to go back to an essay belonging to the so-called cosmological (that is

cosmogonical) period: *Evolutionary Love* (1893). As the title suggests, this is the place where Peirce explains his view of evolution, i.e., his view that evolution is a matter of Thirdness.

3.3. The Novelty of Continuity: Agapastic Evolution, Growth, and the Propulsive Power of Love

In *Evolutionary Love,* Peirce distinguishes three kinds of evolution: a) evolution by chance or sporting, b) evolution by mechanical necessity, and c) evolution by the force of habit. We can also read these kinds of evolution as evolution by Firstness, by Secondness, and by Thirdness. The one Peirce supports, and fully elaborates, is the third one. He takes his cue from Lamarkian evolution, according to which "the transmission of acquired characters is of the general nature of habit-taking, and this is the representative and derivative within the physiological domain of the law of mind" (EP1: 360). Peirce describes this evolution in the following way:

> Now it is energetic projaculation […] by which in the typical instances of Lamarckian evolution the new elements of form are first created. Habit, however, forces them to take practical shapes, compatible with the structures they affect, and in the form of heredity and otherwise, gradually replaces the spontaneous energy that sustains them (EP1: 360).

In this way, habit takes a double role in Peirce's evolution. Peirce writes, "it serves to establish the new features, and also to bring them into harmony with the general morphology and function of the animals and plants to which they belong" (EP1: 360). Furthermore, Peirce notices that his own description of Lamarkian evolution, i.e, evolution by force of habit, "coincides with the general description of the action of love" (EP1: 361). At the beginning of the essay, Peirce refers to St. John's concept of "cherishing-love" (EP1: 352) and sees in this concept the basis of an evolutionary philosophy "which teaches that growth comes only from love, from […] the ardent impulse to fulfill another's highest impulse" (EP1: 354). In drawing this equivalence between the movement of habit and that of love, Peirce goes so far as to say that this kind of evolution, which presupposes that "all matter is really mind, […] [and] the continuity of the mind" (EP1: 361), is an "evolution by creative love" (EP1: 362).

Therefore, as creative love is the pivotal element of Peirce's evolution, Peirce names this kind of evolution *agapastic*, while evolution by fortuitous variation is called *tychastic*, and evolution by mechanical necessity *anancastic*. On the whole, Peirce states:

> The doctrines which represent these as severally of principal importance, we may term *tychasticism*, *anancasticism*, and *agapasticism*. On the other hand the mere propositions that absolute chance, mechanical necessity, and the law of love, are severally operative in the cosmos, may receive the names of *tychism*, *anancism*, and *agapism*. All three modes of evolution are composed of the same general elements. Agapasm exhibits them most clearly (EP1: 362).

Peirce's theory of evolution is represented by the doctrine of agapasm, which embraces tychism and permits us to recognize the latter as a degenerate case of it. Indeed, in agapasm "advance takes place by virtue of a positive sympathy among the created springing from continuity of mind," and "this is the idea which tychasticism knows not how to manage" (EP1: 362).[29] In other words, the limit of tychism – that is, evolution by chance – lies in its inability to account for continuity, sympathy, love itself. Instead, agapism encompasses chance, and the latter is subsidiary to the propulsive movement of love. For this reason, from the 1880s onwards, Peirce does not regard his philosophy merely as tychism. So far, we have highlighted Peirce's emphasis on tychism, and his support for absolute chance, but his position is more complex, even during the elaboration of cosmogony. Peirce does not retract his view of absolute chance, but considers merely impossible to account for evolution only by chance. He states in *The Logic of Continuity* (1898),

> I object to having my metaphysical system as a whole called Tychism. For although tychism does enter into it, it only enters as subsidiary to that which is really, as I regard it, the characteristic of my doctrine, namely, that I chiefly insist upon continuity, or Thirdness, and, in order to secure to thirdness its really commanding function, I find it indispensable fully [to] recognize that it is a third, and that Firstness, or chance, and Secondness, or Brute reaction, are other

[29] On this point, cf. also Ibri 2013.

> elements, without the independence of which Thirdness would not have anything upon which to operate. Accordingly, I like to call my theory Synechism, because it rests on the study of continuity (RLT: 261).

We have already introduced *synechism* as the keystone of Peirce's metaphysical thought (cf. § 2.3), but now we need to reconnect it to agapasm, or rather to connect agapasm to synechism. In other words, having illustrated the preeminence of the concept of continuity, we can now, by agapism, understand how Peirce conceives of his "evolution of continuity." As Peirce argues, "The philosophy we draw from John's gospel is that this is the way mind develops; and as for the cosmos, only so far as it yet is mind, and so has life, is it capable of further evolution. Love recognizing germs of loveliness in hateful, gradually warms it into life, and makes it lovely" (EP1: 354).

Given the general characteristics of agapism set forth above, we can now focus on the specific issue here at stake: cosmological novelty. In § 3.1 we described novelty as absolute chance (with regard to Peirce's cosmogony); in § 3.2 we discussed novelty as the category of Firstness (with regard to Peirce's cosmological account of categories); we will now turn to the question of whether there is novelty in the context of Peirce's evolution, that is within agapism, and, if so, what that novelty is.

The common way of understanding continuity is one that excludes novelty. Peirce's concept of continuity, and especially his concept of agapastic evolution, discloses a different possibility. For Peirce, continuous evolution does not submit to any mechanical law, and in this sense it can be viewed as open to novelty. Moreover, Peirce says that chance enters into agapism, though as subsidiary element. But to what extent is novelty an intrinsic element of agapism? Moreover, what does it mean to conceive of chance as subsidiary to such a continuity?

Beginning with the latter question, we can say that chance is subsidiary insofar as habit *per se* cannot account for that "spontaneous energy" (EP1: 360) by which "new elements of forms are first created" (EP1: 360). However, agapastic evolution embraces chance without recognizing it as the main agency of evolution itself. Indeed, this is not the only extent to which Peirce's agapism admits novelty. Peirce associates a new "kind of novelty" to agapism, one not at all reducible to Firstness. What is this novelty that agapastic evolution implies? The answer is found in the concept of love itself, *agape*. For Peirce, the movement of love is described as "circular, at one and the same impulse

projecting creations into independency and drawing them into harmony" (EP1: 353). In *agape* we need to recognize a "projecting impulse" as that is what makes this love properly "creative." Novelty in agapistic evolution is therefore brought about by this creative power of love. From another perspective, Peirce describes this creative side of agapism by opposing tychism to genuine agapism. He states, "in a genuine agapasm […] advance takes place by virtue of a positive sympathy among the created springing from continuity of mind" (EP1: 363). Accordingly, the advance of the universe is not to be attributed to chance, but rather to sympathy. Chance exists, and operates in nature – there is always room for arbitrariness and absolute originality – but what makes the universe grow is the projecting impulse of love, its creative power, the sympathy Peirce describes in these pages as surrounding the whole universe. It is remarkable that Peirce associates growth at once to chance/Firstness and to continuity/Thirdness, both in his cosmogonical period and later.

Having demonstrated the connection between growth and chance, I must also mention what Peirce maintains about growth and Thirdness. He states that "once you have embraced the principle of continuity no kind of explanation of things will satisfy you except that they *grew*" (1.175, 1893). Until agapism is taken into account, however, it is hard to explain *how* they grew. Peirce's description of love offers us an explanation, or at least a hypothesis. In short, what Chance, Firstness cannot account for is the kind of novelty that continuity carries with it, that is "the vital freedom which is the breath of the spirit of love" (EP1: 363).[30]

[30] It is worthwhile to note that in *Evolutionary Love* the author, talking about the development of thought, states that the adoption of certain mental tendencies is by "an immediate attraction for the idea itself, whose nature is divined before the mind possesses it, by the power of sympathy," "by virtue of an attraction [an idea] exercises upon his mind even before he comprehended" (EP1: 364). On the one hand, this view supports Peirce's later thoughts on rational instinct and musement (cf. Ch. 2 on gnoseological novelty); on the other, musement, together with its aesthetical reading of signs, which leads toward one idea or another, can be construed as an explanation of this cosmological sympathy or attractiveness. What would be easier than thinking of attractiveness in terms of aesthetics?

PART III
WHITEHEAD'S ACCOUNT OF NOVELTY

1. Novelty from Peirce to Whitehead: Henri Bergson and William James

In the first two decades of the 20th century the topic of novelty came into focus as it never had before. Many philosophers both in Europe and in the United States addressed this topic with intense philosophical debate, including some of the most remarkable voices of that time such as Henri Bergson (1859-1941) and William James (1842-1910).

As we saw in Part I, Ch. 2, § 1.2, Peirce was twenty-two years older than Whitehead, and Whitehead's reputation as a philosopher grew after Peirce's death. Thus, their consideration of the problem of novelty differs greatly, partly because of the influence of the philosophies of Bergson and James. Although Peirce was a contemporary and close friend of James, the former never took an active part in the debate about novelty, in contrast to most European philosophers, especially in England and France. Consequently, insofar as the problem of novelty is concerned, Peirce belongs to the philosophical era preceding that of Bergson and James, and likewise, Whitehead.

The difference between Peirce, on the one hand, and Bergson, James, and Whitehead on the other, does not concern a fixed interpretation of novelty, or some issues related to it. Instead, what makes Whitehead's account of novelty completely different from that of Peirce is the very possibility of *speaking* of the problem of novelty, of posing the problem of novelty from a genuine, philosophical perspective. As we saw in Part II, the problem of novelty is central to Peirce's thought, and Peirce's standpoint is undoubtedly original. Nevertheless, he never explicitly tackles the problem of novelty as such. Peirce's original conception of novelty emerges through an analysis of categories, abduction, and cosmology, but, as important as novelty is for Peirce's thought, it does not appear as a problem *per se* in Peirce's writings.

In contrast, Whitehead's thought developed in a philosophical context in which novelty was one of the issue most investigated. Whitehead, before moving to Harvard in 1924, was already playing an active role in the philosophical community,[1] and he often addressed problems that were commonly regarded as relevant. In other words, his thought was permeated with the concerns of his time. It is important to note that this does not make Whitehead's account of novelty less original than Peirce's, but rather that contemporary concerns represent an important factor in the development of his

[1] For instance, in 1922-23 he was elected President of the Aristotelian Society.

philosophy. It is one thing to bring to the surface the original conception of novelty *implied* in a certain philosophy, as in the case of Peirce. It is another matter to consider how a certain philosophy *addresses* a particular problem, namely novelty. The latter is the case of Whitehead, and especially of his cosmology. In light of the relevance that his contemporaries attributed to the problem of novelty, he took novelty into explicit consideration when formulating his cosmology. In this way, he greatly contributed to the discussion and explanation of the topic of novelty itself, so much so that he is now considered, together with Bergson and James, as one of "the" thinkers of the 20th century who focused on novelty.[2]

Yet to what extent can we consider novelty to have been a pivotal issue in the first decades of the past century? How was novelty introduced into the philosophical arena, by whom, and who can be considered to be among the representative thinkers about novelty?[3] In my view, the greatest evidence for the primacy of the concept of novelty at the beginning of the 20th century is offered by the Presidential Address to the Aristotelian Society, on October 10th, 1921. That year, the president of the society was the British pragmatist Ferdinand Canning Scott Schiller (1864-1937),[4] and he meaningfully decided to entitle his paper "Novelty." It begins as follows:

> [W]e have tonight to consider the most detested of subjects, which runs odiously counter to every instinct and every habit of every being, animate and inanimate. Even a desperado like myself would hardly have dared to intrude it upon a gathering of respectable philosophers, if he could not quote precedents and claim

[2] Cf. North 2013, 6: "Philosophical accounts of the new became especially self-conscious, not oddly, around the beginning of the twentieth century, when William James and Henri Bergson added their considerable efforts to those of Whitehead. But these are really additions to the history of the new and not accounts of it, except insofar as all three philosophers identify novelty as one of the great unsolved problems in modern thought." As I have already mentioned, these philosophers not only identified novelty as one of the great unsolved problems in modern thought, they also posed this problem for the first time in history."

[3] For the reasons set forth before, mainly connected to the difference of Whitehead's approach from Peirce's, I will now introduce the issue of novelty, stressing its peculiar relevance in that period. I will not analyze to what extent James, Bergson, or British emergentism influenced Whitehead's thought. For an in-depth analysis of this kind of comparison and influence, see Lowe 1949 (upon James, Bergson and Alexander); Deveaux 1961 (on Bergson); Emmett 1992 (on Alexander); Griffin 1993 (for a general overview), Auxier (1999), Brioschi 2013a (on James) and Brioschi 2013b (on British Emergentism).

[4] Besides Whitehead and Schiller, it is signifcant that, among others, Alexander, Lloyd Morgan, Broad – that is, the members of the British Emergentists – were also members of the Aristotelian Society; respectively presidents in 1908-1911 and 1936-37, 1926-1927, 1927-1928.

> support; if, that is, the greatest of living metaphysicians had not so effectively pleaded for a revision of the old Eleatic verdict, to which nearly all philosophers have assented with such uncritical docility and unthinking enthusiasm, that no place need be made for Novelty in our philosophies, because Novelty is as such ultimately unthinkable and impossible. Perhaps M. Bergson's greatest achievement is to have shaken this prejudice, and to have made Novelty a good philosophic problem. It is no longer mere impertinence to inquire into Novelty, to ask philosophers to recognize its existence, to beg them to analyse why they hate it and won't, and to insist that, whether they hate it or not, they have got to have it. If I do not suffer the fate of Pentheus, Galileo, or Bruno, before I have sufficiently elucidated these points, I may perhaps persuade one or two that since Novelty is ineluctable and we are all so constructed as to experience it, and the world is continually generating it, it may be more reasonable, or at least more sensible, to try to understand it than to try to ignore it (Schiller 1921-22, 1-2).

After this prologue, Schiller argues for the existence of novelty, and explains why it is hardly accepted. For the present purposes, it will be sufficient to analyze the introductory passage quoted, rather than to examine Schiller's further arguments. The first part of the paper, quoted above, conveys indeed the importance, audacity, and inevitableness of the focus on novelty at that time.

First of all, it is important to note that Schiller was speaking in a public context, in front to a vast audience, and in the presence of some of the most brilliant philosophical minds of the time. In a nutshell, this was a kind of situation in which one would not dare to describe a state of affairs if there were no evidence of it. In the first part (lines 1-9), Schiller presents the controversial character of novelty, and emphasizes how it had been neglected throughout the history of philosophy, due to the "unthinkability" and "impossibility" of novelty. Next (lines 9-14), he identifies Bergson as the philosopher who disrupts the millenarian philosophical tendency to repudiate novelty, and who finally makes it a "good philosophical problem." As a consequence, novelty goes from being neglected to being extremely relevant. It was indeed a topic so challenging that every philosopher was called upon to take a stand on it, whether one agreed with Bergson or not. Furthermore (lines 14-19), according to Schiller, novelty is so ineluctable that it is more reasonable to take it into account than ignore it.

Schiller's presidential address thus sheds light on the importance and propagation of the topic of novelty in the 1920s, and reveals that Bergson is the philosopher who had the audacity to introduce novelty into philosophical debates of the time. This thesis is further corroborated by Lloyd Morgan, an exponent of British emergent evolution. Explaining the need for developing a doctrine of emergent evolution, he argues that "[the] emergence of the new is now widely accepted where life and mind are concerned. *It is a doctrine untiringly advocated by Professor Bergson*" (Lloyd Morgan 1923, 3, emphasis added).[5] But where does Bergson advocate novelty and what does he mean by it?

Bergson introduces and evaluates novelty in his masterpiece, *Creative Evolution* (1907). In this work, novelty played a determinant role in the formulation of a new conception of evolution, as well as of experience and possibility. In addition, for a brief explanation of what Bergson means by "novelty," we may refer to another essay of his, *Le possible et le réel,* written later than *Creative Evolution*, in 1920. In this work, Bergson returns to novelty and explains his philosophical standpoint on it in the following way:

> I should like to come back to a subject on which I have already spoken, the continuous creation of unforeseeable novelty which seems to be going on in the universe. As far as I am concerned, I feel I am experiencing it constantly. No matter how I try to imagine in detail what is going to happen to me, still how inadequate, how abstract and stilted is the thing I have imagined in comparison to what actually happens! The realization brings along with it an unforeseeable nothing which changes everything (Bergson 2007, 73).

Accordingly, the actuality of experience, as well as every fact in its own process of realization, brings along an "unforeseeable nothing," the happening of novelty that

[5] British Emergentism represents an evidence of the relevance of novelty at the beginning of the past century. To introduce this movement of thought, whose main exponents are Conwy Lloyd Morgan (1852-1936), Samuel Alexander (1859-1938), and Charlie Dunbar Broad (1887-1971), we can use David's Blitz words. Blitz writes that "the development of emergent evolution involved the combination of two ideas: the first held that evolution was a general phenomena, sweeping through all domains of nature, while the second stated that at specific points of development, new levels of organization appeared, featuring novel qualities" (Blitz 1992, 76). Whitehead was deeply interested in their thought, and had a great esteem for them, especially Alexander. Cf. SMW: ix and Lowe 1990, 173.

exceeds every possible imagination, and at once reconfigures all has happened before it appears.

In close contact with Bergson was the American philosopher William James, the other principal figure who focused so much on novelty. In his work *Some Problems of Philosophy: A Beginning for an Introduction to Philosophy*, published posthumously in 1911, James presents and illustrates the major problems of philosophy. In presenting these major problems of philosophy, he devotes five chapters to the theme of novelty. Thus, together with the problem of being, that of percepts/concepts, and that of one/many, he identifies novelty as one of the most inescapable and fundamental topics of all metaphysics. Novelty is also the concept through which James proposes his metaphysical standpoint of pluralism, as well as his pluralistic universe (cf. James 1909, 153). Moreover, James is persuaded that the conceptual power of *novelty* is so strong that he employs it in order to elucidate and explain other concepts commonly belonging to the philosophical tradition. For example, with respect to free will, James states:

> We do, in fact, experience perceptual novelties all the while. Our perceptual experience overlaps our conceptual reason: the *that* transcends the *why*. So the common-sense view of life, as something really dramatic, with work done, and things decided here and now, is acceptable to pluralism. 'Free will' means nothing but real novelty; so pluralism accepts the concept of free-will (James 1911, 141).[6]

Thus, we see that for James, as for Bergson, novelty is constantly being perceived. Furthermore, novelty is understood exclusively as a matter of experience and perceptions, in opposition to a world of thought and concepts. In addition, for James novelty is so important that he goes so far as to attribute to novelty a pivotal role in his own philosophy. If we limit our analysis to the latter part of his thought, it is reasonable to suggest that novelty is one of the main tenets of his philosophy, along with pure experience and pluralism. However, what is pertinent here is not James's peculiar concept of novelty, but rather the fact that James explicitly adopted the term novelty in his philosophy *per se*, just as Bergson and other philosophers did. The relevance James

[6] It is apparent that, according to James, the concept of novelty is intertwined with the priority accorded to perceptual experience over the conceptual. A few lines before, the author affirms that "we cannot explain conceptually how genuine novelties can come; but if one did come we could experience that it came" (SPP: 140).

gives to novelty testifies that, from Bergson onwards, the problem of novelty was philosophically relevant. Moreover, the relevance of novelty was not merely a European trend, because James was probably the most famous and appreciated American philosopher at the beginning of the 20th century.[7]

These are important historical changes because, while Peirce does not address the problem of novelty in terms of novelty, in Whitehead's writings we notice the prominent presence of the concept of novelty as such. Through this brief survey we can see that this difference was mainly due to the thought of Bergson and James. Without ignoring the radical differences between Bergson and James, it should be noted that both these authors chose a similar path: namely, they both endeavored to build a new kind of philosophy: a philosophy not against reason, but wider than rationalism, that insists upon experience in a way that differs from empiricism. Moreover, a philosophy that is able to encompass novelty without reducing it. As James states in his *Pragmatism*:

> The essential contrast is that for rationalism reality is ready–made and complete from all eternity, while for pragmatism it is still in the making, and awaits part of its complexion from the future. On the one side the universe is absolutely secure, on the other it is still pursuing its adventures (James 1907, 257).

As we will see, Whitehead's philosophy belongs to this same kind of "adventurous" philosophy, in which novelty is admitted and recognized as fundamental and not merely subsidiary.

2. Methodology

The following analyses of Whitehead's thought will be divided into three parts. As with Peirce, I will analyze Whitehead's phenomenological, gnoseological, and

[7] Whitehead's esteem of James is indeed clearly stated in almost every book he wrote. Cf. SMW: 2-3, 143; PR: xii, 68; MT: 2-3. In particular, we know that Whitehead read or even studied James's *Some Problems of Philosophy*, since he wrote in a footnote of *Process and Reality*, after stressing the importance of James's concept of experience: "*Some Problems of Philosophy*, Ch. X; my attention was drawn to this passage by its quotation in *Religion in the Philosophy of William James*, by Professor J.S. Bixler" (PR: 68).

cosmological accounts of novelty. In my discussion of Whitehead's thought, however, there will be certain methodological differences from my analysis of Peirce's account of novelty.

2.1. Science and Philosophy: Whitehead's Divergence from Peirce

In discussing Peirce I first presented his classification of the sciences, in particular his account of the division of the sciences of discovery. We next explored the division of philosophy, moving progressively from the lower level of philosophy (that is, phenomenology), to the higher one (that is, cosmology). In contrast to Peirce's account of philosophy and science, Whitehead's conception of philosophy never committed him to any classification of the sciences. Indeed, Whitehead did not agree with the principle of such an organization of the branches of knowledge. According to Peirce, the sciences of discoveries are divided into i) mathematics, ii) philosophy (*cenoscopy*), and iii) special sciences (*idioscopy*) such as physics, chemistry, biology, and psychology. According to Whitehead, philosophy is not a science at all, but is the opposite of science. Indeed, from his perspective, the functions of science and philosophy, as well as the methods they follow, are radically antithetical.[8]

For Whitehead, science – namely, all sciences, from mathematics to psychology – deals with the realm of abstraction. Recalling the Latin etymology of "abstraction," *abstract* is something which is drawn away. In Latin, *abstractus* comes from *abs-trahere*, *abs-* meaning "from" and *trahere* "to draw off." Thus Whitehead considers the sciences to be systems of abstraction, each having a determined set of abstractions as its proper object.

According to Whitehead, the development of a science, or the formation of abstraction, can be depicted in this way: a factor or part of experience is isolated, and then abstracted or drawn away from the totality to which it belongs in concrete experience. When it is totally abstracted from experience, namely when the totality of its connections with other factors is omitted,[9] that factor becomes merely an entity, an element of thought, finally independent from any factor of experience whatsoever

[8] Cf. also Part I, Ch. 2, § 2.2.

[9] This totality of connections represents a connectedness that is makes a factor of experience really concrete.

(cf. CN: 13-15).[10] This final, isolated, and independent factor is regarded as a scientific object. Given this process of abstraction, the function of science is, therefore, to arrive at those entities by processes of abstraction, to establish connections among these abstract entities, or to come to new elements of the same kinds in order to achieve the consistency of the system. In this sense, according to Whitehead, science pertains to the world of abstraction, while "Philosophy is not one among the sciences with its own little scheme of abstractions which it works away at perfecting and improving" (SMW: 87).

In order to understand the reasons why Whitehead strongly affirms the different *status* of philosophy we need, first of all, to unfold two fundamental implications of this view of science as a matter of abstractions. The first implication concerns the very definition of science. To state that science is related to abstractions means that the horizon of science does not extend beyond those abstractions, but is confined to them. Certainly, science can expand its limits, but it can never emerge from its own abstractions. For this reason, Whitehead notes that "the world of science has always remained perfectly satisfied with its peculiar abstractions. They work, and that is sufficient for it" (SMW: 67). The second implication is connected to the peculiar character of abstraction *per se*. According to Whitehead, the fact that science works upon abstractions has its own *pros* and *cons*. On the one hand,

> The advantage of confining attention to a definite group of abstractions, is that you confine your thoughts to clear-cut definite things, with clear-cut definite relations. Accordingly, if you have a logical head, you can deduce a variety of conclusions respecting the relationships between these abstract entities (SMW: 59).[11]

On the other hand, "the disadvantage of exclusive attention to a group of abstractions; however well-founded, is that, by the nature of the case, you have abstracted from the remainder of things" (SMW: 59). Thus, on the whole (i) every

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[10] For a detailed analysis of this kind of process, see Ch. 1 of the present part.

[11] It is worthwhile to note that when Whitehead emphasizes the abstractive character of science, he does not mean to deny that science is pursuing the truth. For science to be abstract does not necessarily mean that it is arbitrary. Whitehead argues, "Furthermore, if the abstractions are well-founded, that is to say, if they do not abstract from everything that is important in experience, the scientific thought which confines itself to these abstractions will arrive at a variety of important truths relating to our experience of nature" (SMW: 59).

science must refer to a set of abstractions; and (ii), for the essential nature of abstraction, it must accordingly omit "the remainder of things."[12] For these reasons, Whitehead never draws any classification of the sciences. In addition, he does not speak of philosophy as a science, but instead considers philosophy and science to be opposites of one another.

If, for Whitehead, science concerns the field of abstraction, philosophy concerns the field of experience, the field of concreteness. Whitehead says that philosophy "seeks those generalities which characterize the complete reality of fact, and apart from which any fact must sink into an abstraction" (AI: 146). Whitehead also writes that "a philosophic system should present an elucidation of concrete fact from which the sciences abstract" (AI: 146).[13] In both cases, the field of philosophy is concrete experience, not abstractions of facts, but their complete characterization. Science makes abstractions, but philosophy does not. It aims instead at the concrete. But what does it mean that the field of philosophy is the concrete, or that philosophy aims at the concrete? What, according to Whitehead, is the specific function of philosophy?

As we cannot follow a classification of philosophy, as we did with Peirce, the method I will follow in analyzing Whitehead's philosophy will begin with the answers to these questions.

2.2. The Two Souls of Philosophy: Its Critical and Constructive Functions

It is important to note at the outset that, to state that the field of philosophy corresponds to concrete experience does not mean that philosophy explains the concrete while science explains abstraction. On the contrary, science *makes* abstractions, and philosophy *explains* them insofar as it reconnects abstractions to concrete experience. As Whitehead states, the business of philosophy "is to explain the emergence of the more abstract things from the more concrete things. […] The true philosophic question is, How can concrete fact exhibit entities abstract from itself and yet participated in by its own nature? In other words, philosophy is explanatory of abstraction, and not of

[12] In other words, the totality of the fact, or the concreteness of experience.

[13] Although Whitehead presents philosophy in opposition to science, he does think that philosophy and science must cooperate. The opposition presented in Whitehead's explanation is a useful way of helping the reader understand the different method and functions of philosophy and science. With this regard, see also Part I, Ch. 2, § 2.3.3, where aI quoted AI: 146.

concreteness" (PR: 20). In this way, to say that the field of philosophy is experience and concreteness means that philosophy continuously appeals to and refers to experience in order to explain what is abstract.

2.2.1. Critique as Appeal to Concrete Experience

In this sense, the first task of philosophy is to criticize science. Whitehead states that "Philosophy is the criticism of abstractions which govern special modes of thought" (MT: 48). How does this critique happen? Whitehead exhibits two different ways in which philosophy can be critical. The first lies in the fact that philosophical critique happens by reference to concrete experience.[14] To avoid the risk of thinking of concrete experience as Empiricists do (that is, as punctual, atomic and unrelated moments), and in order to correctly understand the meaning of 'concrete experience,' it is useful to introduce an image which Whitehead adopts in illustrating the aim of philosophy. He argues that "the task of philosophy is to recover the totality obscured by the selection" (PR: 15). This is the reason why Whitehead maintains that we can criticize science by appealing to concrete experience. Concrete experience is nothing but the recovery of the totality omitted in abstractions.[15] The field of concrete experience is where the totality of connections stays. It is where every element, every*thing*, exists not in isolation, but rather together with all other elements, factors, or things.

2.2.2. Critique as Survey and Comparison among Sciences

In addition to the appeal to concrete experience, Whitehead maintains that philosophy has another way of performing its first task, that is of being critical of

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[14] For Whitehead, the function of philosophical critique also plays an essential role for society. As Whitehead argues, "In so far as the excluded things are important in your experience, your modes of thought are not fitted to deal with them. You cannot think without abstractions; accordingly, it is of the utmost importance to be vigilant in critically revising your modes of abstraction. It is here that philosophy finds its niche as essential to the healthy progress of society. It is the critic of abstractions. A civilisation which cannot burst through its current abstractions is doomed to sterility after a very limited period of progress. An active school of philosophy is quite as important for the locomotion of ideas, as is an active school of railway engineers for the locomotion of fuel" (SMW: 59). Cf. also AI: 98.

[15] For the moment, I leave unexplored the possibility of reconnecting an abstraction to the totality of concrete experience. This problem deals with Whitehead's concept of knowledge, and evidence. It is possible to reconnect something to the totality from which it was previously abstracted? What does it mean? What kind of cognitive abilities are here recognized? I will address these kinds of problems in Ch. 2, when we will discuss Whitehead's gnoseological account of novelty.

abstractions. The second way of criticizing science consists in taking into consideration every specific science *per se*, studying it and its consistency. It also consists in comparing that particular science with other sciences. This comparison requires an initial "survey of sciences" (SMW: 87), as well as a search for the concordance of their ideas (cf. AI: 146). How can this concordance be found? We can pinpoint two different criteria. The first is *consistency*, both within a particular science and among different sciences. The second is what Whitehead calls "evidence." Evidence, according to Whitehead, though it contains an intrinsic reference to experience, is not properly a matter of experience conceived as personal experience or concrete experience, but rather pertains to sciences and civilization. Whitehead argues:

> What are we appealing to in the development of philosophic thought? Where is the evidence? The answer is evidently human experience, as shared by civilized intercommunication. The expression of such evidence, so far as it is widely shared, is to be found in law, in moral and sociological habits, in literature and art as ministering to human satisfactions, in historical judgments on the rise and decay of social systems, and in science. It is also diffused throughout the meanings of words and linguistic expressions. Philosophy is a secondary activity. It meditates on this variety of expression (MT: 70-71).

Evidence is therefore a characteristic of "human experience," but not of 'experience' according to our common understanding of it. For instance, it is not at all an element of our perceptual experience *strictu sensu*. Neither is it a matter of thought or ideas *per se,* as in the case of the clear and distinct ideas of Descartes. Evidence is human experience, but only to the extent to which experience is "shared by civilized intercommunication." Thus, evidence is supported by the wide sharing of certain elements through the different sciences. As Whitehead states above, evidence is maintained insofar as "it is widely shared." Evidence is consequently "diffused" throughout sciences such as law, literature, art, history, and science, as well as in habits. Philosophy criticizes the sciences by virtue of that evidence which the sciences carry within them, though without recognizing it.

Evidence also leads us toward the second function of philosophy: namely, its constructive one. Philosophy does not simply offer a critique of the sciences by identifying the diffused elements found among them. It is also the task of philosophy,

when evidence is individuated and recognized, to find a way of expressing evidence with generality. Evidence, insofar as it is diffused, must overcome the particularity of every single science.

2.2.3. The Constructive Side of Philosophy

According to Whitehead, if philosophy were only to critique, it would betray its own nature, the nature of reason, which is never satisfied by a result already reached. If philosophy is limited only to criticizing scientific results and finding a concordance among them, then it would halt "at a particular set of abstractions" (SMW: 201). Whitehead argues that, in fact, philosophy should provide a further, synthetic expression and illustration of evidence. The necessity of this "constructive" side of philosophy corresponds to the highest function of reason. It is what makes philosophy speculative. Whitehead introduces speculative philosophy as follows, in *Process and Reality*:

> 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. […] the fundamental ideas, in terms of which the scheme is developed, presuppose each other so that in isolation they are meaningless. This requirement does not mean that they are definable in terms of each other; it means that what is indefinable in one such notion cannot be abstracted from its relevance to the other notions. It is the ideal of speculative philosophy that its fundamental notions shall not seem capable of abstraction from each other. In other words, it is presupposed that no entity can be conceived in complete abstraction from the system of the universe, and that it is the business of speculative philosophy to exhibit this truth (PR: 3).

As we see, philosophy does not merely offer a critique of science. It has a constructive side, a properly speculative one. It aims to formulate a scheme of general ideas "in terms of which every element of our experience can be interpreted." This scheme radically differs from that of sciences, because, in the case of philosophy, the scheme of explanation regards *every* element of experience, rather than a limited range. Moreover, insofar as the object of investigation is concrete experience – or the totality of experience – the elements of the speculative scheme cannot be abstracted from one

another. In other words, just as a concrete fact requires all its relations and factors if it is to be the way it is, a philosophical scheme needs all its elements, in their mutual relationships, to be really explanatory. To the extent that concreteness means to be together, to "grow together," an element of concreteness returns again in philosophical analysis. As a consequence, the more a philosophical scheme is capable of avoiding abstract elements, and the more it is able to present their togetherness, the more it will be adequate.

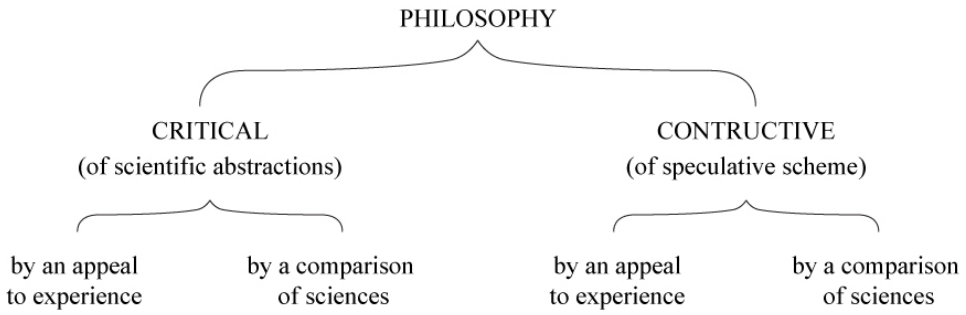
Just as in the case of the critical side of philosophy, there are two different ways in which constructive, speculative philosophy works. We have seen how the constructive side consists in *elaborating* a "concrete" and general scheme of thought. But thus far we have only illustrated how the elaboration originates from the evidence found in scientific ideas and in civilization. However, there is also another way in which speculative philosophy proceeds in formulating the speculative scheme. As in the case of the critical side of philosophy, the constructive function of philosophy can be either based upon sciences, or upon "concrete experience." In this case, "concrete experience" refers to the "immediate experience which we express in our actions, our hopes, our sympathies, our purposes, and which we enjoy in spite of our lack of phrases for its verbal analysis" (PR: 49-50). This speculation from immediate experience is what Whitehead emphasizes in his famous example of the so-called "fallacy of the perfect dictionary." He argues in the final part of *Modes of Thought*,

> The fallacy of the perfect dictionary divides philosophers into two schools, namely, the "Critical School," which repudiates speculative philosophy, and the "Speculative School" which includes it. The critical school confines itself to verbal analysis within the limits of the dictionary. The speculative school appeals to direct insight, and endeavours to indicate its meanings by further appeal to situations which promote such specific insights. It then enlarges the dictionary. The divergence between the schools is the quarrel between safety and adventure (MT: 173).

The description of this fallacy gives a synthetic overview of Whitehead's conception of philosophy. This example is helpful in summarizing the path followed so far. According to Whitehead, philosophy has two complementary, tasks: 1) the critique of (scientific) abstractions and 2) the formulation of a speculative scheme (that is, it

enlarges the dictionary). Each of these tasks is carried out by a) an exhaustive analysis and comparison of sciences, and/or b) a reference to concrete, immediate experience.

The above analysis of Whitehead's view of philosophy is essential for understanding how we will now speak of phenomenology, gnoseology, and cosmology.



2.3. Whitehead's View of Philosophy and the Present Method of Analysis

If we cannot follow a classification of the sciences with regard to Whitehead's thought (cf. Part III, § 2.1) due to his organicistic view of philosophy (cf. for instance PR: 18), then we likewise cannot divide philosophy into different branches, as we did in the case of Peirce. However, considering all differences, we can assume that the different functions of philosophy described above are elements that can help us to distinguish Whitehead's various approaches and ways of philosophical inquiry. In so doing, we can present his philosophy as it corresponds to the different functions of philosophy.

Throughout Whitehead's writings, the functions of philosophy are always connected. He never portrays one function of philosophy operating alone, in absolute isolation. Each function involves the others at all times. For instance, it is impossible to conceive of the critical side of philosophy apart from its constructive side. Even at an elementary level, every time Whitehead criticizes a mode of abstractions, he is affirming, by means of contrast, something else. He is promoting another "speculative" hypothesis. In addition, it is worthwhile to note that the results obtained through the consideration of one function of philosophy (let us say the critical one), will be determinant to obtaining

results in consideration of another function of philosophy (the speculative one, in this case). For instance, at the level of critique by immediate experience, philosophy will bring to the surface some elements previously omitted by sciences. Then, at the speculative level, the same elements will be those (or at least a part of those) that make us try to elaborate a certain speculative scheme.

Even though Whitehead does not explicitly articulate the division of philosophy according to its functions, it is nevertheless possible to distinguish in Whitehead's *opus* some books (or passages) where he is more committed to one function of philosophy, or to the another. For purposes of clarity and order, first I ascribe the term

(i) "phenomenology" to the function of philosophy that criticizes abstraction by appealing to concrete, immediate experience (cf. §§ 2.2.1, 2.2.3);

(ii) "cosmology" to the function of philosophy that elaborates a speculative scheme (cf. §§ 2.2.1, 2.2.2);[16]

(iii) "gnoseology" to the core of all philosophy, since in both phenomenology and cosmology it is presupposed that reason, and therefore philosophy, has the power to know the truth of things.

Second, borrowing from the common critical understanding of Whitehead's *oeuvre* as a whole (a whole conceived not as plain but a multi-faceted and changing one),[17] I will especially refer to *The Concept of Nature* (1920) in regard to phenomenology, *The Function of Reason* (1929), *Adventures of Ideas* (1933), and *Modes of Thought* (1938) in regard to gnoseology, and *Process and Reality* in regard to cosmology. From theses texts, we will see how Whitehead's conception of novelty refers to the field of experience, to knowledge, and finally to his account of the universe.

[16] We will see in Ch. 3 why, even in this case, "cosmological" corresponds to "speculative."

[17] The first to have suggested this hypothesis is Victor Lowe. Cf. Lowe 1962, 122.

Chapter 1

Whitehead's Phenomenological Account of Novelty

1. Whitehead's Phenomenology: Main Characteristics

1.1. The Aim of Whitehead's Phenomenology

Our analysis of Whitehead's phenomenology centers on his work *The Concept of Nature.*[18] This book, published in 1920, is representative of the "pre-speculative" or "epistemological phase"[19] of Whitehead's thought,[20] before he was hired to teach in the Department of Philosophy a Harvard. During this period, Whitehead himself maintains that the aim of his work is "to lay the basis of a natural philosophy which is the necessary presupposition of a reorganized speculative physics" (CN: vii). Accordingly, we can say that Whitehead's phenomenology is conceived of as a preliminary philosophical work, necessitated by his reorganization of (physical) science. Undoubtedly, he chose the "natural" with the intention of placing this kind of philosophy in opposition to metaphysics (R: 4). But what does he mean by natural philosophy? Natural philosophy is a philosophy which "has nothing to do with ethics or theology or the theory of aesthetics. It is solely engaged in determining the most general conceptions which apply to things observed by the senses" (R: 4). To put it plainly, natural science aims to illustrate nature.

Yet what is nature? Whitehead poses the same question at the beginning of the book, and according to him the answer is not trivial. He asks, "What do we mean by nature? […] What is nature? Nature is that which we observe in perception through the senses"

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[18] Nonetheless, I will also take into consideration other Whitehead's works. Indeed, insofar as Whitehead's thought can be considered as a whole, it is possible to find further clarification of the arguments offered in *The Concept of Nature* by referring to works belonging to his later, speculative period. Accordingly, we will consider *The Concept of Nature* not as the exclusive object of the present phenomenological analysis, but rather as the focal point of it.

[19] Cf. Metz 1938, 591 and Lowe 1962, 117.

[20] This epistemological period corresponds to the so-called *1920 books*. They are: *An Enquiry Concerning the Principles of Natural Knowledge* (1919, 1924), *The Concept of Nature* (1920), and *The Principle of Relativity with Applications to Physical Science* (1922).

(CN: 4). For Whitehead, then, if we are to determine what nature is, then we must not start from its definition, or from the way it is presented by sciences. Instead, we must observe our perceptual experience. Whitehead's phenomenology, thus conceived of as a natural philosophy, concerns the level of perceptual experience.[21] Whitehead explains the aim of phenomenology in more detail as follows:

> The primary task of a philosophy of natural science is to elucidate the concept of nature, considered as one complex fact for knowledge, to exhibit the fundamental entities and the fundamental relations between entities in terms of which all laws of nature have to be stated, and to secure that the entities and relations thus exhibited are adequate for the expression of all the relations between entities which occur in nature (CN: 46).

The goal of phenomenology, then, is the elucidation of the concept of nature. This goal can be reached only when the constituent entities and relations of experience, presupposed by every scientific statement, are exhibited and fully articulated through an analysis of perceptual experience.

1.2. The Method of Whitehead's Phenomenology

If, in *The Concept of Nature*, the field of perceptual experience is phenomenology's field of investigation, the question remains: what method we are required to follow in phenomenology? We have already mentioned that, for Whitehead, we are required to

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[21] Because of this preeminence of perceptual experience, Whitehead's philosophy has been compared with Husserl's and especially Merleau-Ponty's phenomenology. Cf. in particular Paci 1964a, Vanzago 2001, Élie 2003. In the present chapter I refer to nature in terms of experience. Generally speaking, nature is not the same of experience. However, this interpretation is supported by Whitehead's construction of nature as what we perceptually experience. Indeed, insofar as nature corresponds to "the experienced" (to what we experience in perception), and insofar as natural science looks for "the most general conceptions which apply to things observed by the senses" (R: 4), we can regard nature as experience. For instance, the description of the most general conception of nature will be similar to the description of the most general structures of lived experience. Moreover, this interpretation of *The Concept of Nature* is corroborated by the emphasis Whitehead puts upon experience in *Science and the Modern World* and *Process and Reality*. If we read his works from *The Concept of Nature* to *Modes of Thought*, we will see that the relevance of experience, and Whitehead's general interpretation of it, does not radically change, but only receives further characterization, while undergoing some slight modifications connected to Whitehead's elaboration of his own philosophy. On the whole, the main difference between *The Concept of Nature* and the speculative works consists in the consideration of the subject, or "percipient event." The reason of this exclusion from his investigation is certainly due to his conviction, albeit a provisional one, that it is possible to account for experience without taking into consideration its subjective side. This hypothesis is dismissed, however, especially in PR: Part II, Ch. VII, and AI: Ch. XI.

"observe" what we perceive through senses. Moreover, "observation" is not, according to him, a preliminary phase on the basis of which we can finally advance an explanation of nature. On the contrary, the explanation of nature consists precisely in the description of the entities and relations that constitute nature (or experience). We can even say that, for Whitehead, the only method of phenomenology is observation. Better yet, we can say that the phenomenological method lies in observation and illustration. To understand what nature is we "just" need to observe what we experience and then illustrate it, that is exhibit all the essential connections and entities which constitute experience. The reasons for this peculiar coincidence between observation and explanation, which determines the method of phenomenology as merely descriptive, are rooted in Whitehead's most general conception of knowledge. He states:

> There can be no explanation of the 'why' of knowledge, we can only describe the 'what' of knowledge. Namely we can analyse the content and its internal relations, but we cannot explain why there is knowledge (CN: 32).

For him, it makes no sense to ask why we experience what we experience. But why is it that, according to Whitehead, we cannot explain why there is knowledge, or why we experience something in the way we do?

From his point of view, to ask why we know or why we experience implicitly means to assume another level of investigation. This level of investigation assumed is more "concrete" than that of experience, such that it determinates experience itself. If we were to attempt to answer these sorts of questions, we would be obliged to postulate some entities before or below the level of perceptual experience, identifying them as the causes of our own experience.[22] But Whitehead considers experience to be the 'ultimate' level, the most concrete one. The kind of assumptions we would have to make to answer these questions belong, on the contrary, to a "metaphysical" standpoint. Whitehead writes,

> The immediate thesis for discussion is that any metaphysical interpretation is an illegitimate importation into the philosophy of natural science. By a metaphysical

[22] Cf. § 2.1.

> interpretation I mean any discussion of the *how* (beyond nature) and of the *why* (beyond nature) of thought and sense-awareness (CN: 28).

As is apparent, thus far Whitehead conceives of metaphysics only in a negative sense, that is, he considers it to be essentially divergent from experience. His natural philosophy is contrary to a metaphysical viewpoint, because it is based on nature, on experience. It *must* not go beyond them. There is nothing before experience. In particular, nothing before experience can account for experience, nothing out of experience can offer an explanation for it. Only abstractions can be explained, concreteness cannot. In this way, at the level of experience, that is at a phenomenological level, the only method admitted is observation and description. In a nutshell, we cannot explain experience, we can only observe and elucidate it. The only way of "explaining" experience is to shed light upon it along with its factors and relationships.

Thus, if in *The Concept of Nature* Whitehead is still far from recognizing the possibility of a positive metaphysics, we can say that he is already adopting "the primary method of philosophy" (and later of metaphysics), which, in *Process and Reality,* he calls "descriptive generalization" (PR: 11).

1.3. The Object of Whitehead's Phenomenology

As a result of the analysis of the aims and method of Whitehead's phenomenology, we can state that the object of his phenomenology is nature. More particularly, when Whitehead refers to nature, he means nature as it is perceptually experienced; however, speaking of "experienced nature" carries an ambiguity. "Experienced nature" is a misleading term if our goal is to understand Whitehead's perspective. When we refer to "experienced nature," what usually happens is that we are already presupposing a certain conception of nature. When we look at experience we end up simply finding evidence for the concept we already have in mind. In this case, our appeal to experience is only subsidiary, a way of "proving" a previous assumption. We barely look at experience, instead searching for confirmation of our own ideas.

In contrast to this misleading idea of "experienced nature," Whitehead asserts that the natural *is* what is experienced. We start from experience, and then consider everything we have experienced as natural. In other words, insofar as something is

experienced, that thing must be natural. In this case we do not start from an idea or a concept, but rather from a perception. But to what extent does Whitehead take perception into account? And how does perception modify our common understanding of nature, i.e., how does it determine the object of phenomenology? Whitehead himself responds to these questions. After emphasizing the limits of any inquiry into the field of perceptual experience, he argues that natural philosophy "is the philosophy of the thing perceived, and it should not be confused with the metaphysics of reality of which the scope embraces both perceiver and perceived" (CN: 28). Thus we see that phenomenology concerns perception, but only in the sense in which we say that an object is perceived. To put it another way, phenomenology concerns perception only insofar as it concerns the *object perceived*, "the perceived" *per se*. He specifies, "In other words, the ground taken is this: sense-awareness is an awareness of something. What then is the general character of that something of which we are aware? We do not ask about the percipient or about the process, but about *the perceived*" (CN: 28, emphasis added). In this sense, the object of phenomenology is neither the percipient, nor the process of perception (such as "the perception of something"). Rather, it is *the perceived*, its general character, and "the coherence of things perceptively known" (CN: 29).

Following this train of reasoning, Whitehead clarifies the implications of such a perspective. He states:

> For natural philosophy everything perceived is in nature. We may not pick and choose. For us the red glow of the sunset should be as much part of nature as are the molecules and electric waves by which men of science would explain the phenomenon. It is for natural philosophy to analyse how these various elements of nature are connected (CN: 28-29).

Accordingly, for Whitehead *everything perceived* is in nature, not only the extension of a solid, or its weight, but *all* we can experience, from molecules up to the most subtle nuances of colors, from the perfume of a rose to the sinuosity of a cat. Everything perceived is nature, and from this arises the need to understand how these elements of perception are connected. The object of Whitehead's phenomenology can therefore be

described as *nature* (from a general point of view), or as *the things perceived and their mutual connections* (from a specific point of view).

2. Experience as Event

Thus far we have presented the methodological framework of Whitehead's inquiry and introduced the object and aim of his phenomenology. Now we will turn to the the general characteristics of experience. What are the general features of "the perceived," and in what way can we describe their connection? As mentioned in § 2.2.1, in *The Concept of Nature* Whitehead is committed to idea of philosophy as the critique of scientific abstraction by virtue of an appeal to concrete experience. For this reason, *The Concept of Nature* does not open with a direct description of experience – as we have now formally presented – but instead begins with his critique of those modes of thought that we commonly adopt with regard to nature, i.e., to everything we experience.

2.1. Substance and the Fallacy of Misplaced Concreteness

In the first two chapters of *The Concept of Nature*, Whitehead undertakes a critique of the usual understanding of nature. This common understanding of nature, according to Whitehead, has its roots in the Aristotelian logical compound of subject-predicate. which nowadays lends support to the materialistic standpoint which constitutes the dominant perspective on experience, both among the sciences and in common sense. Whitehead's critique is thus simultaneously directed to the vulgar, as well as to scientists and metaphysicians because this common understanding has become *the* mode through which we all, indiscriminately, think of nature, or at least *tend* to think of it. Whitehead refers to this tendency as an "insistent habit of postulation" (CN: 18), and indeed as an "arbitrary one" (cf. CN: 59). By analyzing and declaring the limits of this mode of thought, as well as the conception of experience that follows it, he gradually brings to the surface the real character of experience.

Whitehead speaks of a postulate of thought which is relevant to our understanding of nature. He notes that from Aristotle onwards, "the attribution of a predicate to a subject" has been considered "the fundamental type of affirmative proposition" (CN: 18). In addition, he points out that Aristotle emphasizes the meaning of 'substance' as "the

ultimate substratum which is no longer predicated of anything else" (CN: 18). According to Whitehead, this Aristotelian logic has been uncritically accepted. That is, it was immediately assumed and never put into question, and has led to "an ingrained tendency to postulate a substratum for whatever is disclosed in sense-awareness, namely, to look below what we are aware of for the substance in the sense of the 'concrete thing'" (CN: 18).[23] From this perspective, having Aristotle's logic in mind, however vaguely, we tend to construe nature as merely matter, or, prior even to the concept of matter, as substance. Accordingly, nature has been regarded as a kind of substratum, a sort of unchangeable, immutable foundation for all the mutable facts and attributes we actually perceive in experience. Thus, on the one hand, we have a neutral individual thing out of reach (nature as substance), and, on the other hand, we have a multiplicity of experiences (such as qualities), merely accidental in comparison to the substance-nature we postulate below them.[24] Having explored Whitehead's method of phenomenological inquiry, we can immediately see that he is dissatisfied with this kind of philosophical hypothesis, insofar as it moves beyond, or even before, experience. The problem, for Whitehead, lies in the fact that in, the case of nature, we begin with *analyzing* perception, but we ultimately, without even realizing it, end up affirming that nature is something beyond perception.

Whitehead explains this by introducing the terms *fact*, *factors*, and *entities*. He writes that

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[23] It is worthwhile to note that Whitehead does not consider this postulate of thought to be arbitrary. He recognizes its great value in human thought, but emphasizes that it is not adequate to an understanding of nature or experience. In his own words, "Of course, substance and quality, as well as simple location, are the most natural ideas for the human mind. It is the way in which we think of things, and without these ways of thinking we could not get our ideas straight for daily use. There is no doubt about this. The only question is, *How concretely are we thinking when we consider nature under these conceptions?* My point will be, that we are presenting ourselves with simplified editions of immediate matters of fact" (SMW: 53, emphasis added).

[24] Whitehead confirms this standpoint years later in *Adventures of Ideas*. He argues, "Aristotle introduced the static fallacy by another concept which has infected all subsequent philosophy. He conceived of primary substances as the static foundations which received the impress of qualification. In the case of human experience, a modern version of the same notion is Locke's metaphor of the mind as an 'empty cabinet' receiving the impress of ideas. Thus for Locke the reality does not reside in the process but in the static recipient of process. According to the versions of Aristotle and Locke, one primary substance cannot be a component in the nature of another primary substance. Thus the interconnections of primary substances must be devoid of the substantial reality of the primary substances themselves. With this doctrine, the conjunction of actualities has, in various shapes, been a problem throughout modern philosophy – both for metaphysics and for epistemology. The taint of Aristotelian Logic has thrown the whole emphasis of metaphysical thought upon substantives and adjectives, to the neglect of prepositions and conjunctions. This Aristotelian doctrine is in this book summarily denied" (AI: 276).

> there are three components in our knowledge of nature, namely, fact, factors, and entities. Fact is the undifferentiated terminus of sense-awareness; factors are termini of sense-awareness, differentiated as elements of fact; entities are factors in their function as the termini of thought (CN: 13).

We can analyze nature in terms of *fact*, *factors* and *entities*. *Fact* is the undifferentiated terminus of perception. *Factors* and *entities* represent the same object, but in different respects: *factors* are viewed as termini of perception, and so they are *factors* of the fact of nature; while *entities* are termini of thought. Indeed, entities are simply factors considered *per se*. They are factors abstracted from the totality of the fact. Because Whitehead presents the relations between the different components of our knowledge of nature in this way, the problem with the Aristotelian account lies in the "misconception of the metaphysical status of natural entities" (CN: 16). Indeed, according to Whitehead, our mentality, shaped by a millenarian history of philosophy and science, assumes natural entities to be a substratum of the factors of the fact of nature. To take entities as the substratum of facts ultimately corresponds to the idea that entities underlie factors, that entities are conditions of factors, or that entities cause factors. Whitehead summarizes:

> My theory of the formation of the scientific doctrine of matter is that first philosophy illegitimately transformed the bare entity, which is simply an abstraction necessary for the method of thought, into the metaphysical substratum of these factors in nature which in various senses are assigned to entities as their attributes; and that, as a second step, scientists (including philosophers who were scientists) in conscious or unconscious ignoration of philosophy presupposed this substratum, *qua substratum* for attributes, as nevertheless in time and space (CN: 20-21). [25]

[25] There is another fallacy connected to this one. It concerns space-time and substance. Whitehead refers to it as "the doctrine of simple location." It is the "simple location of instantaneous material configurations […] what Bergson has protested against, so far as it concerns time and so far as it is taken to be the fundamental fact of concrete nature" (SMW: 52). More plainly, Whitehead describes it as follows: "By *simple location* I mean one major characteristic which refers equally-both to space and to time […] The characteristic common both to space and time is that material can be said to be *here* in space and *here* in time, or *here* in space-time, in a perfectly definite sense which does not require for its explanation any reference to other regions of space-time. […] If a region is merely a way of indicating a certain set of relations to other entities, then this characteristic, which I call simple location, is that

In this passage, Whitehead illustrates the peculiar inversion of the functions of entities and factors. This is not an inversion regarding nature in general. Instead, it is the process which every "perceived thing" undergoes: the taste of an ice-cream, the color of a sunset, etc. Each of these qualities is merely accidental: the taste of the substrate-ice-cream, and the color of the substrate-sunset. The substances are beyond our perceptual experience. The name he attributes to this kind of distortion is "the fallacy of misplaced concreteness," because it concerns the inversion of the abstract (the entities) with the concrete (the factors). Whitehead defines it as

> an error; […] merely the accidental error of mistaking the abstract for the concrete. It is an example of what I will call the 'Fallacy of Misplaced Concreteness'. This fallacy is the occasion of great confusion in philosophy. It is not necessary for the intellect to fall into the trap, though in this example there has been a very general tendency to do so (SMW: 52).[26]

To think of nature as a substance is an instance of the fallacy of misplaced concreteness. This fallacy has been widely adopted, both in philosophy and science. Scientific entities, such as neurons, for instance, are frequently regarded as the substratum of lived phenomena. It is common to consider these abstract entities (e.g.,

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material can be said to have just these relations of position to the other entities without requiring for its explanation any reference to other regions constituted by analogous relations of position to the same entities. In fact, as soon as you have settled, however you do settle, what you mean by a definite place in space-time, you can adequately state the relation of a particular material body to space-time by saying that it is just there, in that place; and, so far as simple location is concerned, there is nothing more to be said on the subject" (SMW: 50).

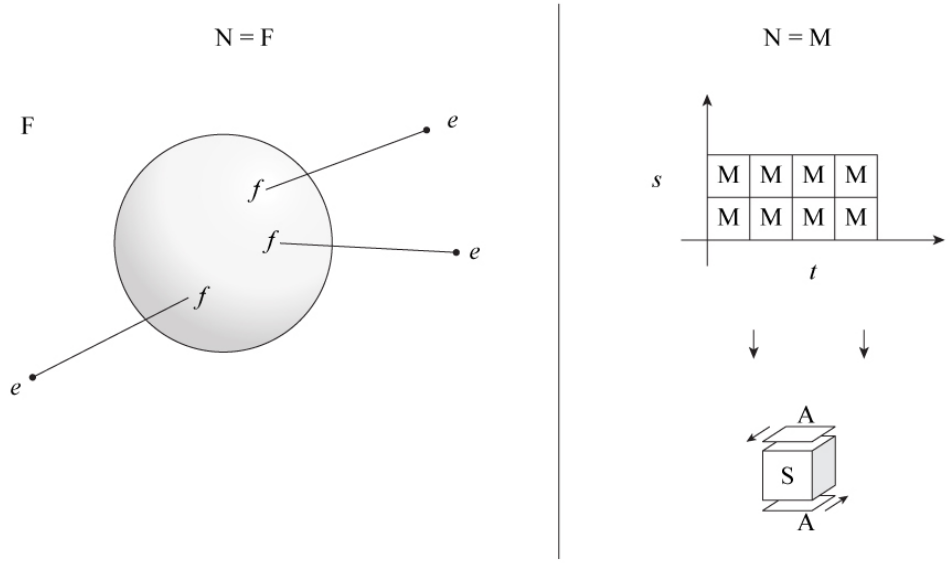
[26] It is important not to overlook Whitehead's emphasis on the *accidental* characteristic of misplaced concreteness, as this accidental characteristics means that that our understanding does not necessarily misplace concreteness. Whitehead strongly recalls Bergson, and his critique of philosophical problems as "*mal posée*," but at the same time, Whitehead diverges from Bergson insofar as he maintains that this is not the only possibility for our understanding. It is easy to misplace concreteness, but we can avoid doing so. As Whitehead puts in in *Science and the Modern World*, "[the] simple location of instantaneous material configurations is what Bergson has protested against, so far as it concerns time and so far as it is taken to be the fundamental fact of concrete nature. He calls it a distortion of nature due to the intellectual 'spatialisation' of things. I agree with Bergson in his protest: but I do not agree that such distortion is a vice necessary to the intellectual apprehension of nature" (SMW: 52). To say that this distortion is a vice necessary to the intellectual apprehension of nature would, from Whitehead's perspective, imply that rational inquiry is impeded (cf. AI: 223). At the very least, it would make this rational investigation harder to conceive. In this sense, Whitehead states in the Preface of *Process and Reality* that "I am also greatly indebted to Bergson, William James, and John Dewey. One of my preoccupations has been to rescue their type of thought from the charge of anti-intellectualism, which rightly or wrongly has been associated with it" (PR: xii).

neurons) as the most concrete and general causes of our experience, rather than as elements of our explanation of phenomena.[27] As a consequence, the adoption of the Aristotelian logical compound of substance-predicate, together with the fallacious inversion of concreteness and abstraction, has led to a conception of nature and experience, which really is *abstract*, in the common sense of the world. Generally speaking, the common conception of nature can be summarized thus: "Nature is a dull affair, soundless, scentless, colourless; merely the hurrying of material, endlessly, meaninglessly" (SMW: 56). If the philosophical tradition, as well as scientific thought, and the dominant mentality more or less consciously support this abstract view of nature, how can we describe nature in a manner that appeals to concrete experience? From another point of view, what is revealed in the concrete manifestation of experience? How can we describe the concreteness of experience.

2.2. Events as the Concreteness of Experience

By criticizing the current substantialistic mode of thought, we have already introduced a positive account of experience in its concreteness. It can be expressed in the following way:

[27] For Whitehead's detailed description of a case of misplaced concreteness, cf. SMW: 54-55. This distortion of misplaced concreteness has one of its most important applications in the scientific thought of 17th century, when, following this fallacy, scientists finally dismissed the so-called secondary qualities. With a great irony, Whitehead notes in *Science and the Modern World*, "The primary qualities are the essential qualities of substances whose spatio-temporal relationships constitute nature. The orderliness of these relationships constitutes the order of nature. […] But the mind in apprehending also experiences sensations which, properly speaking, are qualities of the mind alone. These sensations are projected by the mind so as to clothe appropriate bodies in external nature. Thus the bodies are perceived as with qualities which in reality do not belong to them, qualities which in fact are purely the offspring of the mind. Thus nature gets credit which should in truth be reserved for ourselves; the rose for its scent, the nightingale for his song, and the sun for his radiance. The poets are entirely mistaken. They should address their lyrics to themselves, and should turn them into odes of self-congratulation on the excellency of the human mind. […] However you disguise it, this is the practical outcome of the characteristic scientific philosophy which closed the seventeenth century" (SMW: 55-56).



On the right page we have the traditional, abstract, view of nature. We can read the table on three different levels, from the top down. The first level represents the general overview of conception. In this case, nature (N) is, on the whole, matter (M): N=M. Below "N=M," we find a more specific view of nature. According to this view, things perceived in nature are similarly reduced to mere matter (M). They are related to one another in terms of space and time, and accordingly their characteristics depend on their simple localization in space and time. Finally, the arrows point at a third level of explanation, the lowest, which corresponds to the general assumption of this materialistic standpoint. At this level, the logical compound of subject(S)-attribute(A) appears. According to this compound, nature, as well as the things perceived, are the substratum, the *upocheimena* of experience, while our experiences *per se* are seen as mere accidental attributes of the "concrete things" out of the reach of experience.

In contrast to the view represented on the right, the left side of the page summarizes Whitehead's general account of nature described above. Looking at the chart again from the top, we see that, in perception, nature (N) is given to us as a fact (F): N=F. We never perceive something individual and unchangeable, i.e., substance, matter. This *fact* is total, complex, and inexhaustible. It comprises many factors (*f*), instead of attributes or predicates, and each of these factors is in relation to each other. The *fact* also comprises *entities* (*e*), which are the factors considered as termini of thought. In other words, they are considered in isolation and abstraction from the totality of the fact.

If we take concreteness and abstraction as the criteria for analysis, we can see that the two positions here presented are almost perfectly contrary to one another. If we follow the traditional view of nature, we will come to the following conclusions: (i) subject is more concrete than predicates, (ii) substance is more concrete than attributes and predicates, and so (iii) science is paradoxically more concrete than experience. In contrast, if we follow Whitehead's view, we conclude that (i) experience is more concrete than science, (ii) a factor is more concrete than an entity (of thought), (iii) fact is more concrete than matter.[28]

Given this general framework, how does Whitehead describe the experience of nature? Far from suggesting any "intellectual rendering" (CN: 71) of it, Whitehead begins by analyzing the experience of nature from its most preeminent and essential characteristics. He argues that "we perceive one unit factor in nature; and this factor is that something is going on then and there" (CN: 75). It is important to note that the term 'factor' here refers to the essential feature of the fact of nature, or as a determinant factor of it. As Whitehead further explains, "in the first place there is posited for us a general fact: namely, something is going on" (CN: 49).[29] In other words, if we limit ourselves to our present experience, even before we are able to discern all the detailed contents of our perception, we will first recognize the general and most prominent character of it, namely, nature is in the making: "there is something going on." Every natural fact, and even the fact of nature, are experienced by us as "something that is going on." Nature is experienced as dynamical. Whitehead summarizes his account of nature, both with respect to its general and particular aspects, as follows: "Our knowledge of nature is an experience of activity (or passage). The things previously observed are active entities, the 'events'" (CN: 185). Nature is, from a general perspective, an experience of "activity" or "passage." From a particular perspective, nature is composed of and by events. Whitehead writes,

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[28] For the sake of completeness, we should include substance and event, but we will analyze them in the next section.

[29] Whitehead uses this phrase when speaking about time. However, since, for him, what we usually define as time is a mere abstraction from the texture and connectedness of events, I maintain that it is possible to attribute the quoted phrase to experience in general. And, in fact, Whitehead attributes this characteristic to the general field of perception. For a detailed investigation on Whitehead's concept of time, see Vanzago 2005.

> Nature is known to us in our experience as a complex of passing events. In this complex we discern definite mutual relations between component events, which we may call their relative positions, and these positions we express partly in terms of space and partly in terms of time (CN 166).

Thus, just as factor belongs to fact, and fact is the totality of factors, event belongs to nature, and nature is the "complex of passing events." In this account nature is a complex, a "dynamical totality" (Vanzago 2001, 287), always open and presenting a "ragged edge" (CN: 50). We can discern events, and their the mutual relations which are grasped by us in terms of time and space. Events are so essential to Whitehead's view of nature that he goes so far as to say that "if we are to look for substance anywhere, I should find it in events which are in some sense the ultimate substance of nature" (CN: 19).[30]

2.3. The Characters of Event

According to Whitehead, events are "chunks in the life of nature" (CN: 185). They correspond to "the most concrete fact[s] capable of separate discrimination" (CN: 189), and are therefore considered to be the "ultimate facts of nature" (CN: 167). Whitehead thus defines an event as a *minimal experiential unity*. In other words, as the author clarifies in *Science and the Modern World*, event is "the ultimate unit of natural occurrence" (SMW: 105). It is important to note, however that the unity of events is not the unity that belongs to the Aristotelian substance. An event possesses a different kind of unity. Whitehead underlines the "finite" character of event (cf. SMW: 129), emphasizing that the nature of events belongs to the field of experience. Understanding the unity of each event as finite means both that events are not outside of experience, and that we cannot further divide them. But what then characterizes this peculiar unity of events as the minimal unity *of* experience? The unity of an event does not correspond to a sort of permanence in the general becoming of nature, as we have already mentioned in the previous section. On the contrary, the unity of an event is characterized by the fact of being in process. The nature of event, precisely insofar as it

[30] Whitehead paradoxically attributes 'substance' to 'event' because he wants to emphasize the "ultimate" character of event, not because event can be compared with substance or explained in terms of it.

is the "most concrete fact capable of separate discrimination," lies in its "retaining in itself the passage of nature" (CN: 75). Because an event is a unity without being a substantial unity, it is not the same as the permanent substratum proposed by the metaphysical tradition. Instead, Whitehead speaks of events as "active entities" (cf. § 2.2, present chapter). An event is "active" because its concrete unity consists in the passing of the event itself. Accordingly, its unity does not refer to a lower level, unchangeable, but to the fact you cannot break up the passage of nature further, unless you lose the passage itself, that is, the event in its own concreteness. In order to avoid a substantialistic misunderstanding, Whitehead states that "whatever passes is an event" (CN: 124). He stresses that "nature [is] an event present for sense-awareness, and essentially passing" (CN: 14).[31] To sum up, Whitehead's definition in *Science and the Modern World* provides the general meaning of event. As he puts it,

> These unities, which I call events, are the emergence into actuality of something. How are we to characterise the something which thus emerges? The name 'event' given to such a unity, draws attention to the inherent *transitoriness*, combined with the actual unity (SMW 95).

We can see, then, that events are not static, "dead" unities, but are unities of becoming, "drops of perception," to recall James's jargon.[32] Given this general definition of event, we will briefly analyze the rest of the essential characteristics of events. Besides *unity* and *transitoriness*, every event is characterized by its (i) extension and related-ness, (ii) uniqueness and incomparableness, (iii) "ingredience of objects."

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[31] To give a more comprehensive analysis of this understanding of event as passage, we must also consider the second edition of *An Enquiry Concerning the Principles of Natural Knowledge*, of 1925. Prior to this work, Whitehead emphasized both the character of passage and the character of extension in regard to event. Only after the publication of *The Concept of Nature* he does clarify that the idea of passage, or process, is more essential to event than extension. Cf. particularly PNK2: 202. Whitehead writes, "This book [*The Concept of Nature*] is dominated by the idea [cf. § 14.I, p. 61] that the relation of extension has a unique preeminence and that everything can be got out of it. During the development of the theme, it gradually became evident that this is not the case, and cogredience [cf. 16.4] had to be introduced. But the true doctrine, that 'process' is the fundamental idea, was not in my mind with sufficient emphasis. Extension is derivative from process, and required by it." We will see in a while what Whitehead means by "relation of extension."

[32] It is Whitehead himself who explicitly refers to William James here. He argues, "The authority of William James can be quoted in support of this conclusion. He writes: 'Either your experience is of no content, of no change, or it is of a perceptible amount of content or change. Your acquaintance with reality grows literally by buds or drops of perception. Intellectually and on reflection you can divide these into components, but as immediately given, they come totally or not at all'." (PR: 68).

(i) Once the nature of event *per se* has been clarified, it is necessary to realize that, insofar as events belong to nature, we can never find any of them in isolation from the totality of events. All events are inter-related. Each of them is in relation to one another by means of extension. Whitehead writes, "Every event extends over other events, and every event is extended over by other events" (CN: 58).[33] It is from this relation of events to each another that space and time arise. Indeed, in Whitehead's view, space and time are nothing but the abstraction of the prior fact of the connectedness of events. In other words, if events were not first related to one another, there could not be any time or space whatever. He states that "wherever and whenever something is going on, there is an event. Furthermore 'wherever and whenever' in themselves presuppose an event, for space and time in themselves are abstractions from events" (CN: 78). Space and time are abstractions because they are the "partial expressions of one fundamental relation between events which is neither spatial nor temporal. This relation I call 'extension'" (CN: 185).[34]

(ii) Since Whitehead conceives of an *event* as the unity of a passage in nature, for him every event is essentially "unique and incomparable" (CN: 25). To put it more plainly, the fact that an event represents a passage of nature implies that its own nature is that of passing. Moreover, if an event consists in its passing, then it can never return or be again. Another event can resemble previous events, but the relationships of the new event will necessarily differ from a similar one in the past. As Whitehead states of an event, "when it is gone, it is gone" (CN: 169). Therefore each event is by definition unique and incomparable itself, not because you cannot compare events, but because you

[33] With regard to the relationships of events, in a remarkable a passage of *Science and the Modern World* Whitehead gives a synthetic overview of all the relationships among events. This account refers to Leibniz's theory, because of the "mirror-function" Whitehead attributes to events. He says, "An event has contemporaries. This means that an event mirrors within itself the modes of its, contemporaries as a display of immediate achievement. An event has a past. This means that an event mirrors within itself the modes of its predecessors, as memories which are fused into its own content. An event has a future. This means that an event mirrors within itself such aspects as the future throws back on to the present, or, in other words, as the present has determined concerning the future. Thus an event has anticipation: 'The prophetic soul / Of the wide world dreaming on things to come'" (SMW: 74).

[34] Another way of understanding this extension without immediately reducing it to a space character is in terms of "inclusion." Cf. CN: 185-186.

can only compare a *characteristic* of them. For instance, the event of my birth is unique. It can never really be compared with others, apart from a comparison of some characteristics, such as the mother's age, the weight at birth, the date of birth, etc. What I call here "characteristics" are what Whitehead defines in terms of "objects."

(iii) The *ingredience* of objects into events is the last fundamental characteristic of events. If Whitehead says that "nature is a structure of events and each event has its position in this structure and its own peculiar character or quality" (CN: 166), then objects are those components that give events their peculiar characters, and therefore – allows them to be recognized or compared with others, as mentioned in (ii) (cf. CN: 125). Whitehead states:

> You cannot recognise an event; because when it is gone, it is gone. You may observe another event of analogous character, but the actual chunk of the life of nature is inseparable from its unique occurrence. But a character of an event can be recognised (CN: 169).

In this way we see that every event, *per se*, is a unique occurrence that represents an actual chunk of life whose essence is that of passage. However,

> the character of an event is nothing but the objects which are ingredient in it and the ways in which those objects make their ingression into the event. Thus the theory of objects is the theory of the comparison of events. Events are only comparable because they body forth permanences. We are comparing objects in events whenever we can say, 'There it is again'. Objects are the elements in nature which can 'be again' (CN: 144).

Whitehead thus justifies all those permanences present in nature. They are neither substances, nor mere ideas. Indeed they have no foundation apart from experience. Permanences are the objects of events, the "ingredients" of events. It is impossible to think of their existence apart from events, but each of them can be recognized elsewhere. Each of them can 'be again,' and can be found in other events, or other respects. It is this possibility of recognition that makes objects what they are. For instance, I may look at the sky on a

> beautiful sunny day, and see it as bright blue. Later on, a friend may give me a gift of a blue coat, I can compare the two events. We have here indeed the events, two transitory chunks of life comparable by virtue of one of their ingredients: "blue." Even after a few months I can say that the light blue of the coat reminds me of the sky of a sunny day. Those events are accordingly put into comparison by means of the characteristic "blue," which is an object insofar as I can say: "here it is again!"[35]

3. The Experience of Novelty

Having offered this analysis of Whitehead's phenomenology, which he calls "natural philosophy," we are now able to turn to his phenomenological account of novelty. We can find evidence for the idea of novelty at different levels of generality, from the formal structure and definition of event, to the more general account of nature considered as a whole.

The above analysis of "event" (cf. especially § 2.2 and § 2.3), clearly shows how the concept of event implies novelty at the most concrete level of experience. Indeed, the more Whitehead emphasizes the concreteness of event, the more novelty gains prominence in his system. Every event represents *per se* a novelty, insofar as an event is the most discernable part of experience, and is regarded as a unity of *transitoriness*. Event can be considered as novelty into two different ways. First, every event is new because it cannot be foreseen on the basis of previous events. Moreover, every event is absolutely new to the extent that its relation to other events cannot be the same as the relations of similar events. For these reasons, an event is so unique, that it cannot be compared with other events. Second, and even more essentially, an event designates novelty as such because it stands for "a transition," or a passage. Indeed, an event

[35] For a detailed analysis of the ingressions of objects into events, as well as the different ways they can make their ingressions, see Ch. 7 of *The Concept of Nature*. Also, for the different kind of objects Whitehead takes into consideration, see CN: 134, 151-54 and Leclerc 1961. It is extremely relevant to study this connection of events and objects in order to grasp what Whitehead will later term "eternal objects," cf. especially PR, but also SMW. For instance at SMW: 106 Whitehead says, "An event has to do with all that there is, and in particular with all other events. This interfusion of events is effected by the aspects of those eternal objects, such as colours, sounds, scents, geometrical characters, which are required for nature and are not emergent from it. Such an eternal object will be an ingredient of one event under the guise, or aspect, of qualifying another event."

represents that "passage of nature" (CN: 75) which we usually call 'becoming'. This becoming is not the accidental development of a static entity outside of the range of experience (as in the Aristotelian account of substance and matter (cf. § 2.1)), but, on the contrary, it lies at the heart of experience, presupposing nothing behind or below itself.

In between the level of the structure of event and the general level of nature, we also find the preeminence of novelty in the role and function of event within nature. Events are the "heart of experience," but this is not true merely in the sense that event is the most concrete element of experience. According to Whitehead, not only event is the most concrete unit of experience, but every fact of experience is indeed an event. As Whitehead argues,

> We are accustomed to associate an event with a certain melodramatic quality. [For instance,] If a man is run over, that is an event […]. We are not accustomed to consider the endurance of the Great Pyramid throughout any definite day as an event. But the natural fact which is the Great Pyramid throughout a day, meaning thereby all nature within it, is an event of the same character as the man's accident (CN: 74).

In short, this means that, for Whitehead, every fact is an event, from the natural fact of the Great Pyramid existing throughout a definite day to a man being run over. In Whitehead's account, the character of event is no longer related only to "melodramatic happenings," in which the essential "transitoriness" of event usually emerges the most. Instead, when we look closely, we see that every fact reveals as an event (cf. CN: 75-76). As a consequence, not only is novelty intrinsic to the concept of event, but it also belongs to all the facts of nature, insofar as all facts are events. Therefore, novelty is ubiquitous. We can also say, viewing the issue from the opposite or complementary perspective, that every fact is new. Every fact is new according to the two different meanings proposed above. On the one hand, an event is an unforeseeable happening, and, on the other, it is essentially passing, in a processual way (cf. also SMW: 177).

Given this intrinsic pertinence of novelty to the level of the structure of event, as well as the intrinsic pertinence of event to the level of facts at the general level of nature as inexhaustible totality, Whitehead speaks of "the general advance of nature." On the

whole, nature is neither static, nor merely changing. We neither perceive a substance immutable, nor do we simply perceive changes or modifications. Those drops of experience which are events are not changes or variations of what has passed. In order to emphasize the difference between change as mere variation, and processual passage as related to the occurrence of something new, Whitehead himself refers to the "creative advance" of nature by placing it in opposition to our idea of "single-time series" (CN: 178). In his own words, nature is a "creative advance, which we experience and know as the perpetual transition of nature into novelty" (CN: 178). Thus, when we consider nature in general, our hypothesis – that the specific character of novelty is essentially associated with every event and fact – finds a further, clear-cut, explicit corroboration in Whitehead's words.

In summary, according to Whitehead's phenomenology we experience novelty all the time, in every fact in which we take part and live. In particular, "novelty" is to be understood as the progressive advance given by the relatedness of events, and especially by the unique passage that radically constitutes every event.

In spite of Whitehead's emphasis on the experience of novelty, or on the creative advance, a problem emerges when we consider our conclusions together with the peculiar relationship of objects and events. As we have seen in § 2.3, the uniqueness of events makes them unrecognizable, and therefore not even cognizable. Only objects can be known. Accordingly, it follows that novelty (as the passage of event) is a matter of experience, while objects are a matter of knowledge. From another point of view, given the radical complementarity of object and event, it seems that the preeminence of novelty in the field of experience entails the necessary, structural exclusion of novelty from any account of knowledge, and so from the field of gnoseology. We will address Whitehead's approach to this problem in the next chapter.

Chapter 2

Whitehead's Gnoseological Account of Novelty

The previous chapter dealt with Whitehead's conception of novelty from a phenomenological perspective. In this chapter, we will examine Whitehead's concept of novelty from a gnoseological point of view to see first if there is a place for novelty in his theory of knowledge, and then what kind of conception of novelty it is.

Before undertaking this inquiry, it is essential to clarify what we mean by gnoseology, in the light of our methodological general assumption. In the introduction to the present part of the dissertation, we saw that, with regard to Whitehead, each level of investigation (phenomenology, gnoseology, cosmology) corresponds to a specific function of philosophy. Whitehead's phenomenology has been described as performing the function of philosophy that criticizes abstractions by appealing to concrete experience. Cosmology will be described in the next chapter as performing the function of philosophy that constructs speculative schemes. Gnoseology has been introduced (cf. Part III, § 2.3) as a medium between phenomenology and cosmology. We stated earlier that gnoseology is a perspective of inquiry tacitly implied by both phenomenology and cosmology. Indeed, both phenomenology and cosmology are based on our power to know. In this chapter, we will therefore explore philosophy to the extent it carries out the function of knowledge, the function of philosophy that is in fact regarded by Whitehead as *the* function of reason.

1. Preliminary Question: Is Novelty a Matter of Knowledge?

In the introductory part of this section, we have already shown how the problem of knowledge and the problem of novelty can be considered to be nearly the same. But to what extent does novelty enter into Whitehead's account of knowledge?

1.1. Doubts on the Basis of Phenomenology

The phenomenological inquiry into the problem of novelty can give rise to doubts about Whitehead's account. In the previous chapter on phenomenology, we progressively discovered the essential role Whitehead assigns to novelty at the level of experience. In that context, we identified novelty with *event*, and precisely with that passage of nature that every event retains in itself. Nonetheless, due to the essential relationship between events and objects, we affirmed in the last section that events cannot be known. We saw that, according to Whitehead, only objects can be known. We can know the characters of events, determined indeed by their objects, while events *per se* are so unique that they can only pass, and so can never be recognized or known in their concreteness. As a consequence, if events cannot be known, then it would seem that novelty would also be banned from knowledge. Thus, a question naturally arises: is novelty an object of knowledge? So far, the answer seems to be quite evident: novelty is not an object of knowledge. It exists and represents the core of the concreteness of experience, but its essence remains beyond the limits and possibilities of reason. This conclusion seems to be consistent with the fundamental opposition between concreteness and abstraction. Concreteness lies in events and novelty. Abstraction lies in objects and knowledge. Therefore, novelty *must be* the converse of knowledge, and they cannot be intertwined with each other. They belong to different levels.

The exclusion of novelty from the cognitive horizon finds further support in Whitehead's strong critique of the account of knowledge emphasized by the philosophical tradition. The goal of Whitehead's critique is to make the profundity and richness of experience emerge. For instance, Whitehead firmly refuses the identification of subject-object with knower-known, contending that the basis of experience is wider of that of knowledge. If we compare subject-object to knower-known, the latter is simply "a high abstraction" (AI: 175). Instead, he refers to knowledge as an "additional factor in the subjective form of the interplay of subject with object" (AI: 177). As a consequence, this conception of knowledge as an additional and abstract element of the concreteness of experience confirms the un-relatedness of novelty and knowledge. On the one hand, novelty as event by definition eludes knowledge. Although it can be experienced, novelty cannot be known. On the other hand, knowledge is committed to abstraction, and so it will necessarily miss novelty as such.

A similar standpoint is sustained by William James. In *Some Problems of Philosophy*, James stresses the difference and irreducibility of perceptual experience to the conceptual one. According to his view, perceptual experience is broader than conceptual experience. In addition, it is also more original, but the difference between perception and knowledge becomes really relevant when we take novelty into consideration. According to James, we do experience the occurrence of novelty, but we cannot give any positive account of it. With this regard, James explicitly argues in *Some Problems of Philosophy* that "we cannot explain conceptually how genuine novelty can come; but if one did come we could experience that it came" (SPP: 140). Novelty is accordingly a matter of experience, and not of understanding. We experience it, but never know it. We do not comprehend it, and neither we can conceptualize it. This is James' position, but to what extent should we consider this perspective to be shared by Whitehead?

1.2. Limits of The Concept of Nature*: The Role of Subjectivity and Philosophy*

The hypothesis that novelty cannot be known, while it is supported by the phenomenological account, encounters problems when tested against Whitehead's philosophy. This hypotheses neglects two main points, the first of which is connected to a structural limit of the role of subjectivity in *The Concept of Nature,*[1] and the second of which pertains to the role of philosophy in Whitehead's thought. I will start from the latter.

The difference pointed out in the previous section in regard to novelty and knowledge, concreteness and abstraction, shows no lack of consistency insofar as it marks the line between science and experience. As we analyzed in Part III, § 2.1, experience corresponds to concreteness, while science makes abstractions and deals only with those. Because science is the realm of abstraction, it follows that *scientific* knowledge is also confined to the level of abstraction. Difficulties arise in regard to this conception as soon as we realize that it does not take into account the philosophical standpoint as such. Indeed, in addition to science and experience, we also introduced *philosophy*. Philosophy, as stated above, is not a science at all according to Whitehead.

[1] Cf. Vanzago 2001: 275-77.

It diverges from science in methods, object, and aim. While science focuses on its abstract objects and their relations, philosophy is committed to an investigation of the field of experience. Philosophy is not reducible to science, yet, if we do not reduce philosophy to science, how are we to understand philosophical knowledge? And, if philosophy investigates the concreteness of experience, how are we to think about the relationship of "philosophical knowledge" and novelty? Can philosophical knowledge grasp that novelty which is so evident in experience, but which is always missed by science? We will attempt a positive answer to this question by giving further consideration to Whitehead's emphasis on the antithetical character of science and philosophy.

In addition to the role of philosophy, it is also essential to consider the role of subjectivity if we are to clarify the possibility of a connection between novelty and knowledge. Indeed, in Whitehead's works up to *The Concept of Nature*, on which our phenomenological inquiry is based, the "percipient event" is explicitly excluded from Whitehead's philosophical investigation.[2] This is relevant because, if we affirm that novelty lies outside the field of knowledge, then our hypothesis implies that there is no connection between reason and experience. Reason and experience would ultimately have to be separate, and they would necessarily miss each other. If we compare *The Concept of Nature* with Whitehead's mature works, however, we realize that we must also consider the role of subjectivity, including human reason. Once we begin to consider subjectivity as an element of experience – and therefore reason, in regard to human beings, as an element as well – the scenario changes. Indeed, subjectivity and reason are now viewed as elements of experience. Accordingly, as factors of experience, there must be some connections – at the very least logical connections – between these and the other elements of experience, such as novelty.

The difference between Whitehead's own standpoint and the similar viewpoints of James and Bergson lies in this connection between experience and reason. We have already seen that James regards novelty to be only a matter of perceptual experience, as opposed to reason. Like James, Whitehead stresses the importance of experience, but at the same time distances himself from the American pragmatist. Whitehead does not so

[2] As we discussed in the previous chapter, this is due to Whitehead's provisional aim of reaching a natural philosophy, namely a philosophy of nature, excluding any account of mind or subjectivity.

much oppose these two perspectives of perception and reason, but rather seeks to clarify their connection. From Whitehead's perspective, this difference is not motivated by some specific points of disagreement with the other thinkers. He aims at developing the same, shared perspective further so that it no longer has any ambiguity (cf. also Part III, Ch. 1, § 2.1). In particular, Whitehead hopes to eliminate the ambiguity of anti-intellectualism from their shared philosophical perspective. As he states, with profound respect, in the preface of *Process and Reality*, "one of my preoccupations has been to rescue their type of thought from the charge of anti-intellectualism, which rightly or wrongly has been associated with it" (PR: xii). Whitehead's endeavors are an attempt to reconcile the field of experience with subjectivity, perception with reason, events with knowledge. The first result of this perspective, prior even to a new conception of the relationship between knowledge and novelty, or reason and perception, is undoubtedly a new understanding of subjectivity, reason, and knowledge.

To understand subjectivity, reason, and knowledge as factors of experience means to attribute to each of them a new, experiential, connotation. For this moment, it is sufficient to present, in Whitehead's own words, his new understanding of subjectivity. In *Modes of Thought* he presents his view of subjectivity by offering his interpretation of Descartes's *Cogito*. Whitehead argues:

> Descartes's 'Cogito, ergo sum' is wrongly translated, 'I think, therefore I am'. It is never bare thought or bare existence that we are aware of. I find myself as essentially a unity of emotions, enjoyments, hopes, fears, regrets, valuations of alternatives, decisions – all of them subjective reactions to the environment as active in my nature. My unity – which is Descartes's 'I am' – is my process of shaping this welter of material into a consistent pattern of feelings. The individual enjoyment is what I am in my role of a natural activity, as I shape the activities of the environment into a new creation, which is myself at this moment; and yet, as being myself, it is a continuation of the antecedent world (MT: 166).

As subjectivity is this process of "shaping this welter of material into a consistent pattern of feelings," knowledge therefore becomes a part of this unitary process of experience. Considering Whitehead's clarification of the essential role of philosophy as distinct from the sciences and experience, as well as Whitehead's assertion that subjectivity is a *factor of experience*, we can state that in Whitehead's philosophy an

investigation of the relationship between novelty and knowledge is not only possible, but even important, as it is a central component of his own philosophical perspective.

2. Whitehead's Theory of Knowledge

Although experience is always subjective, it is broader than knowledge. Knowledge is therefore only a possible factor of experience, but as such it retains all the dimensions characteristic of experience. Thus, to consider knowledge as a factor of experience means, first of all, to recover all those permanent elements of experience that must be also features of knowledge.

2.1. "Abstract" and "Concrete" View of Knowledge

If we consider science and philosophy, we can see that there are two possible ways of construing knowledge. In the introductory section of Part III, we pointed out that philosophy and science are antithetical in method, aim, and object (cf. Part III, § 2.1). In particular, while science works within the limits of its own abstractions, philosophy aims at experience. This "limit" of scientific knowledge could be considered to apply to knowledge in general, but, all the same, Whitehead strongly maintains that the aim of reason, and accordingly of philosophy, is to understand experience. If science is confined to its own abstraction, we should therefore admit another kind of knowledge (of experience), or at least inquire about this possibility. In *The Function of Reason* Whitehead specifies that "Naught that happens is alien to it [reason]. […] Its sole satisfaction is that experience has been understood" (FR: 29-30). Accordingly, if the satisfaction of reason depends on the understanding of experience, to what extent can we know and understand experience?

Before answering this question we must distinguish between the traditional view of knowledge and Whitehead's account of it. The traditional view of knowledge corresponds to an "abstract view" of knowledge, insofar it considers knowledge in isolation from experience. This is the view of knowledge taken for granted by the sciences. In contrast, Whitehead's conception proposes a "concrete view" of knowledge, because he analyzes knowledge as an element of experience. This difference is crucial because it permits us to distance ourselves from one of our

common postulates of thought. Indeed, the "abstract view" of knowledge has been so prominent in the history of thought that it has led to one of the most profound fallacies of both traditional philosophy, and common sense: the preeminence of abstract knowledge over experience. To put it another way, the reduction of experience to abstract knowledge. Thus, only by recognizing this reduction, we can give room to a concrete view of knowledge. Only when we realize that experience is more original than knowledge, we can begin conceiving of knowledge – namely, the "conscious discrimination of objects experienced" (AI: 177) – as *one* possible factor of experience.

If this difference between abstract and concrete conception of knowledge is well-founded, we must determine what permanent characters of experience are not accounted for in the traditional view of knowledge. According to Whitehead, the main characters omitted by the abstract view of knowledge are the intrinsic value of experience and its emotional basis. As Whitehead writes, "The basis of experience is emotional. Stated more generally, the basic fact is the rise of an affective tone originating from things whose relevance is given" (AI: 176). Every moment of experience is connoted by an affective tone and a value of importance. Subsequently, our knowledge must also be connoted by an affective tone, depending on the relevance of the data, and on an "intrinsic value," that determines the relevance of the data we experience. Furthermore, this latter element of value is so important that Whitehead goes so far as to say that the structure of experience should be described in terms of "concern." He states, "The Quaker word 'concern' […] is more fitted to express this fundamental structure. The occasion as subject has a 'concern' for the object. And the 'concern' at once places the object as a component in the experience of the subject, with an affective tone drawn from this object and directed towards it" (AI: 176).[3]

[3] To this extent, it is worthwhile to note that Whitehead's view of the concreteness of experience is far from James's conception of 'pure experience'. Although Whitehead still considers there to be a difference between *that* and *what*, between the perceptual experience and the conceptual one, for him the *that* is never "pure." It always carries some value within it, and is therefore always emotively tuned. Whitehead recalls a passage of James's *Essays in Radical Empiricism* in order to stress this point. He argues: "The description of its [the experience] essence must apply to the unborn child, to the baby in its cradle, to the state of sleep, and to that vast background of feeling hardly touched by consciousness. Clear, conscious discrimination is an accident of human existence. It makes us human. But it does not make us exist. It is of the essence of our humanity. But it is an accident of our existence. What is our primary experience which lies below and gives its meaning to our conscious analysis of qualitative detail? In our analysis of detail we are presupposing a background which supplies a meaning. These vivid accidents accentuate something which is already there […]. Our enjoyment of actuality is a realization of worth, good or bad.

Thus, if experience is revealed essentially to be a matter of concern – concern counting indeed for both value and emotion – and if knowledge is a possibility of experience, then we must consider knowledge to be a matter of concern as well. According to Whitehead, that "we experience more than we can analyze" (MT: 89) does not imply that we are again reducing experience to knowledge. Instead, it represents the possibility of grasping knowledge in its concreteness and effective activity. As Whitehead states at the beginning of *Adventures of Ideas*, "I maintain that the notion of 'mere knowledge' is a high abstraction which we should dismiss from our minds. Knowledge is always accompanied with accessories of emotion and purpose" (AI: 4).[4] This is Whitehead's suggestion for how to reach a "concrete" account of knowledge: consider it not alone, but together with emotion and purpose.

2.2. Whitehead's Analysis of Knowledge

If we seek a "concrete account" of knowledge, an adequate description of it is offered by Whitehead in *Modes of Thought*.[5] In the first part of this work, Whitehead aims to "analyze the intelligence of mankind" (MT: 42), and so we can consider the factors he analyzes to be the essential factors of human knowledge. In this explanation of knowledge, Whitehead identifies three factors of knowledge. In his view, knowledge can be described through a trilogy of (i) importance, (ii) expression, (iii) understanding.

(i) The first permanent and essential factor of knowledge is importance. 'Importance' can be seen as an 'intensive valuation' (Jones 1998, 175), that, according to Whitehead,

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It is a value experience. Its basic expression is – Have a care, here is something that matters! Yes – that is the best phrase – the primary glimmering of consciousness reveals, something that matters" (MT: 116).

[4] In this regard, it is not to be overlooked that Whitehead's latest books were entitled "Adventures of Ideas," and "Modes of Thought." These titles testify to Whitehead's commitment to rescuing James, Bergson and others from the charge of anti-intellectualism. From another perspective, these titles also enable us to understand how, from Whitehead's perspective, the relevance of experience is not a dismissal of reason or knowledge.

[5] Another place where Whitehead supports and maintains this view of knowledge is undoubtedly *Process and Reality*, especially Part III. A detailed analysis of this work can be found in Blyth 1941: 67-96. However, I have decided to refer to some writings later than *Process and Reality*, where the same theory is presented in a more accessible way than in his cosmological masterpiece. Also, as Blyth shows, in addition to containing difficult jargon, *Process and Reality* presents some general inconsistencies of thought that make it even harder, with respect to his later works, to understand his thought on knowledge. On the whole, the main problem in *Process and Reality* is related to Whitehead's conception of "eternal objects," and accordingly its explanation of conceptual prehensions. With this regard, cf. also Green 1968: 172-82.

"is always there, just on the edge of consciousness" (MT: 5). For him, this sense of importance "is derived from the immanence of the infinitude in the finite" (MT: 20).

We can better understand this "immanence of the infinitude in the finite" by analyzing importance together with its quasi-synonym: 'interest'. Whitehead uses the terms importance and interest to point to the same character. According to his account, 'importance' relies more on the unity of the universe, and 'interest' more on the individuality of the universe. 'Importance' is connected to the unity of experience because stating that "something is important" always requires a reference, even if reference is only implied. Consider our common, linguistic usage of "important." We usually state "something is important… *in* doing something, or… *for* something, or yet… *to* do something." But what does one affirm, when one only says "this is important!"? According to Whitehead, the reference remains, but in this case the element to which one refers is simply the general totally, and 'general' for Whitehead concerns nothing but the totality of things. As a consequence, the more you state "important" vaguely, the more you are tacitly referring to the totality of experience. For this reason, Whitehead associates it with the unity of the universe. Whitehead also refers to this primary character of experience and knowledge in terms of 'interest'. Instead of associating interest with totality, however, he connects it to individuality because interest always evokes "the intensity of individual feeling" (MT: 8).

A concrete view of knowledge will maintain that we can only know where interest, or importance, is attested. That means, for instance, that deliberately vague judgments such as "This is interesting!" or "This is important!" are implied when knowledge is acquired. In the first case ("This is interesting!"), the emphasis is placed more on the particular circumstance we face. In the second case ("This is important!"), the emphasis is upon the connection with the totality of the universe.

In addition, according to Whitehead, importance is what gives perspective. It is by virtue of importance, and its degrees of variation, that everything assumes a certain perspective. Consequently, importance accounts for the perspective character of knowledge. In other words, there is no knowledge out of importance, and so out of perspective.

(ii) The second essential factor, for Whitehead, is 'expression'. If importance derives from the immanence of the infinitude in the finite, expression is instead only "on the

finite occasion" (MT: 20). In Whitehead's perspective, expression precisely corresponds to "the activity of finitude impressing itself on its environment" (MT: 20). In other words, expression illustrates that process whereby an the individual feeling (of importance) comes to the publicity of the environment. It is *the way* an individual conveys that perspective grasped by virtue of interest and importance. Furthermore, expression is characterized by a selection. When one expresses oneself, one always makes a selection. And so expression, in making a selection, always implies some abstractions from the totality. According to Whitehead, communication, as well as civilization, and history (MT: 20), are founded on this character of expression. But the most exemplificative case of expression is undoubtedly language, which has to be considered as "the systematization of expression" (MT: 34).

(iii) The last notion Whitehead employs is that of 'understanding'. Accordingly, at the level of human beings, we can properly speak of knowledge only when we grasp a meaning. Or, conversely, without grasping a meaning there is no knowledge. But to *what extent* and *how* do we understand, in Whitehead's view?

Generally speaking, according to Whitehead, "a complete understanding is a perfect grasp of the universe in its totality" (MT: 42). The difficulty is that "we are finite beings; and such a grasp is denied to us" (MT: 42). However, for Whitehead, this does not deny any possibility of understanding, but rather it is an element of our attempt to comprehend the nature of the process of understanding. Whitehead writes,

> This is not to say that there are finite aspects of things which are intrinsically incapable of entering into human knowledge. Whatever exists, is capable of knowledge in respect to the finitude of its connections with the rest of things. In other words, we can know anything in some of its perspectives. But the totality of perspectives involves an infinitude beyond finite knowledge (MT: 42).

Accordingly, on the one hand, knowledge, conceived of as understanding, is finite. Everything can be known only in proportion to the "finitude of connections with the rest of things." On the other hand, the very fact of perspective, and, as we have seen, of importance, "involves an infinitude *beyond* the finite knowledge." For this reason, Whitehead does not describe the process of understanding as "a completed static state of mind. It always bears the character of a process of penetration, incomplete and partial"

(MT: 43). The core of understanding is therefore an act of penetration, at every step incomplete and partial. Consequently, Whitehead states that "we can never fully understand, but we can increase our penetration" (MT: 51).[6]

For this reason, we can say that, according to Whitehead, every act of knowledge (i) is always a finite process of penetration, as understanding is necessarily finite; (ii) happens through a particular characterization, as expression is necessarily public and particular (it is always *my* expression, *your* expression, or *one's* expression); and (iii) is always open to the infinitude beyond itself, since importance always refers to that infinitude beyond, and so pushes beyond the pattern reached so far. In other words, Whitehead philosophical perspective describes "human knowledge [as] a process of approximation" (SP: 131), where every detail we know becomes "a weapon for the further discrimination of the penumbral totality" (SP: 132) of experience. Because this general conception of knowledge is finite but open, Whitehead states that

> We must be systematic; but we should keep our systems open. In other words, we should be sensitive to their limitations. There is always a vague beyond, waiting for penetration in respect to its detail (MT: 6).

3. Facets of Process: Finitude of Knowledge and Adventures of Ideas

From this analysis of Whitehead's view of knowledge, we can state that every piece of knowledge, although finite, is related to novelty to the extent that knowledge is a process of penetration of that *beyond* that is the totality of things. The "finitude" of knowledge does not prevent us from further knowledge, from a progressive penetration into that beyond. But how can we conceive of this advancement of knowledge, if complete understanding is always out of reach? And how are we to characterize this novelty of penetration? We will now address finite character of our knowledge, as well as analyze more closely the relationship between this finite character of knowledge, and its advance.

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[6] It is worthwhile to note that, according to Whitehead, to view understanding as a dynamic process of penetration means also to acknowledge our essential nature in its most proper aspect of "urge beyond" (see § 4 of the present chapter). He states, "My thesis is that when we realize ourselves as engaged in a process of penetration, we have a fuller self-knowledge than when we feel a completion of the job of intelligence" (MT: 43).

Whitehead states in the passage quoted above that "we should be sensitive to the limitations of our system." This suggestion is certainly guided by the limited nature of knowledge, but Whitehead insists on this point because, for him, it is not at all a trivial matter. On the contrary, his emphasis on finite knowledge contradicts the common opinion, according to which we can "survey the universe from the standpoint of gods" (SP: 132). In Whitehead's view, this belief especially belongs to philosophers. Indeed, he goes so far as to say that this standpoint of gods with respect to knowledge represents the "besetting sin of philosophers" (SP: 132). In addition, he maintains that, sustained by this conviction, and encouraged by the presumed possession of a clear and distinct language,[7] philosophers have come to consider the universe as a "limited dolls' house of clear and distinct things, secluded from all ambiguity" (SP: 132).

Whitehead's view is certainly opposed to this perspective, and it is motivated by the desire for a more exhaustive analysis of experience. For him, instead of a dolls' house, experience is the locus of a *comparative* clarity – as the degrees of importance have already indicated. The discrimination of this comparative clarity continuously directs us toward the penumbral background of experience. Similarly, with regard to knowledge, we never grasp the totality of things, but we progress from a finite perspective to another finite perspective, the latter embracing (objectifying) the former, but not yet corresponding to a complete one. As we have already mentioned, there is an infinite penetration into the beyond, but it is never total, and can never achieve the totality of reality.

With regard to this connection of finitude and continuous advance, it is remarkable to see that the relevance of beyond-ness, penetration, advancement of knowledge, and novelty, is proportional to the emphasis put upon the limits of knowledge itself. We can dare to say that, for Whitehead, the more we acknowledge the limits of language, thought, and knowledge, the more we need to reconsider, or at least restate, the results and ideas already obtained and developed. This is the reason why Whitehead insists upon the concept of adventure (namely, adventures of ideas), as the most appropriate

[7] On the contrary, Whitehead thinks that this presumed possession of language as an adequate medium of expression is a "curse" of philosophy. He states, "I am impressed by the inadequacy of language to express our conscious thought, and by the inadequacy of our conscious thought to express our subconscious. The curse of philosophy has been the supposition that language is an exact medium. Philosophers verbalize and then suppose the idea is stated for all time" (D: 364).

one for our knowledge. Every piece of knowledge we acquire, every step of the understanding of reason is *per se* almost a dead thing. It does not survive if it is not continuously vivificated. This complementarity of finitude and advance is so relevant for Whitehead that he comes to identify it with the meaning of all his philosophical discourses. He puts it as follows:

> The vitality of thought is in adventure. That is what I have been saying all my life, and I have said little else. Ideas won't keep. Something must be done about them. The idea must constantly be seen in some new aspect. Some element of novelty must be brought into it freshly from time to time; and when that stops, it does. The meaning of life is adventure (D: 250).

As it is clearly stated in the passage quoted above, Whitehead insists on novelty because of the limitations of our ideas. Novelty is not only the opposite of idea, but it is what ideas need in order to be ideas. Novelty is something "brought into" ideas. Accordingly, novelty does not pertain only to experience, but it is essential for and in thought. This possibility of bringing novelty into ideas is so compelling for Whitehead that he considers the advancement of knowledge to be what distinguishes human beings from animal beings. He states, "The definition of mankind is that in this genus of animals the central activity has been developed on the side of its relationship to novelty" (MT: 26).[8] This novelty, this advancement of knowledge, is thus "required" by the limitation of ideas. To this extent, gnoseological novelty is seen by Whitehead as a *new idea*, and as the cause of the progressive advance of reason through new, limited ideas.

Whitehead attempts to base this advance on the character of experience itself, as well as on the limits of thought, by distinguishing the advance into two kinds. He illustrates that "there are two types of advance. One is the advance in the use of assigned patterns

[8] With regard to the relationship between mankind and animals, Whitehead's standpoint is indeed remarkable and quite original. As we have stated, it lies in the connection of reason and novelty. He further elaborates, "There is, however, every gradation of transition between animals and men. In animals we can see emotional feeling, dominantly derived from bodily functions, and yet tinged with purposes, hopes, and expression derived from conceptual functioning. In mankind, the dominant dependence on bodily functioning seems still there. And yet the life of a human being receives its worth, its importance, from the way in which unrealized ideals shape its purposes and tinge its actions. The distinction between men and animals is in one sense only a difference in degree. But the extent of the degree makes all the difference. The Rubicon has been crossed" (MT: 27).

for the coordination of an increased variety of detail" (MT: 57). According to this kind of progress, we advance our knowledge by subsuming new details under a determined pattern of thought for which we have already found some evidence. This is not the kind of advancement he was referring to in the previous quote, however. He indeed shows that, in the long run, this kind of advancement is destined to end. He argues that

> the assignment of the type of pattern restricts the choice of details. In this way the infinitude of the universe is dismissed as irrelevant. The advance which has started with the freshness of sunrise degenerates into a dull accumulation of minor feats of coordination. The history of thought and the history of art illustrate this doctrine. We cannot prescribe the pattern of progress (MT: 57).

Accordingly, we see that this kind of advancement is more due to our tendency to seek coherent forms of expression. In other words, it aims at the maximum consistency of knowledge, and so this kind of advance consists in "the gathering of details into assigned patterns" (MT: 57).[9] Since the idea *per se* is limited, however, the process of gathering details will certainly stop at a certain point. Moreover, the maximum consistency this knowledge can obtain will not provide the satisfaction that the grasp of the totality of reality would give. Similarly, the sum of details will also be unsatisfactory. For this reason, Whitehead goes so far as to say that this advance is "the safe advance of dogmatic spirits, fearful of folly" (MT: 57). However, he states,

> history discloses another type of progress, namely the introduction of novelty of pattern into conceptual experience. In this way, details hitherto undiscriminated or dismissed as casual irrelevances are lifted into coordinated experience. There is a new vision of the great Beyond (MT: 57).

In this case, we do not merely tackle the extension of a pattern already evident, or the increase of details connected to the pattern. We actually pass from one idea to another. An entirely *new* pattern is therefore introduced. This process of penetration of knowledge, namely the advancement of knowledge, does not consist only in an

[9] Whitehead also refers to this kind of advancement in terms of novelty. He states, "There is a novelty received from the aggregate diversities of bodily expressions. Such novelty requires decision as to its reduction to coherence of expression" (MT: 26).

enlargement of perspective, but instead brings about real novelty. This "novelty" is represented by a new idea, but how does this new idea come about? How do we bring novelty into thought? Whitehead provides a specific answer to this problem. This kind of advance consists in "the introduction of novelty of feeling by the entertainment of unexpressed possibilities" (MT: 26). Novelty is accordingly the result of an "entertainment of unexpressed possibilities." It is viewed as the conceptual actualization of possibilities so far unexpressed. Whitehead further states, "The characterization of this conceptual feeling is the sense of what might be and of what might have been. It is the entertainment of alternative" (MT: 26). Whitehead pinpoints novelty as stemming from the peculiar entertainment of alternative that belongs to mind. From yet another perspective, we can see that "man sees a future in the present; there is a vision of what can be done with the material of what is" (D: 158). In addition, through this entertainment of alternative, that is novelty, reason "emphasizes the sense of importance" (MT: 26), and so emphasizes that sense of the infinitude into finitude that we have already analyzed in regards to the factor of knowledge.[10]

To summarize Whitehead's view of knowledge we can turn to Lowe's general account of Whitehead's philosophy. Lowe writes, "Novelty and adventure were too real to Whitehead to permit him to say, like the materialists, that the apparently new is a reconfiguration of the old. Yet his thorough-going rationalism did not permit him to say that novelty just happens" (Lowe 1962: 47). However, a question still remains: what does it mean that we conceptually actualize unexpressed possibilities? That is, how do we grasp novelty and how do we *think* about novelty? We will now explore another of Whitehead's works, *The Function of Reason*.[11] This work, which was coeval to *Process and Reality*, was dedicated to understanding reason. It has been called "the most straightforward and in many ways the most suggestive and delightful of Whitehead's book" (Emmet 1932, 11).

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[10] Furthermore, Whitehead suggests another possibility for acquiring new knowledge and understanding new meanings. It is represented by "that section of value-theory which we term aesthetics" (SP: 138).[10] For Whitehead, if both logic and aesthetics share "the enjoyment of composition, as derived from the interconnections of its factors" (MT: 60), in aesthetics we "are overwhelmed by the beauty of the building, by the delight of the picture, by the exquisite balance of the sentence. The whole precedes the details" (MT: 61).

[11] But cf. also *Modes of Thought*, in particular MT: 26-27.

4. Novelty and the Function of Reason

At the beginning of *The Function of Reason*, Whitehead adopts a peculiar evolutionary standpoint. Just as in regard to experience, he considers reason to be an element of the universe, and he studies it in its connection with the two main tendencies that the universe discloses in history. The first tendency is downward, and is exemplified by "the slow decay of physical nature" (FR: i). The other one is upward, and is exemplified by "the yearly renewal of nature in the spring, and by the upward course of biological evolution" (FR: i). As we can deduce even from this brief introduction, Whitehead's evolutionary standpoint diverges from the classical view of evolution. He indeed refers to two different and opposite tendencies. In addition, he also rejects some of the most common tenets of evolutionary thought. In particular, Whitehead criticizes the theory of the survival of the fittest, and adaptation to the environment. From his point of view, and with regard to the function of reason, the second one is especially relevant. Overall, he thinks that the doctrine of adaptation to the environment is inadequate to describe the evolution of species. The more we look to the higher forms of life, the more it appears that the relationship between species and environment is not at all one of adaptation, but rather one of modification, or even of attack. As he states, "in the case of mankind this active attack on the environment is the most prominent fact in his existence" (FR: 5). Consequently, for Whitehead, we must develop a theory more original than the doctrine of adaptation, a theory able to embrace also this propulsive element which is so prominent in the development of the universe.

Whitehead thereby tries to propose his own evolutionary perspective, and it is from within this general context that he presents reason. He characterizes the essential function of reason in the following way: "The function of reason is to promote the art of life" (FR: 2). In other words, reason is what promotes and guides the propulsive, active element that modifies the environment, or even attacks it. In this sense, reason promotes the art of *life*. Whitehead sets forth the reasons why he speaks of "attack" on the environment when he says:

> I now state the thesis that the explanation of this active attack on the environment is a three-fold urge: (i) to live, (ii) to live well, (iii) to live better. In fact the art of life is first to be alive, secondly to be alive in a satisfactory way, and thirdly to

> acquire an increase in satisfaction. It is at this point of our argument that we have to recur to the function of Reason, namely the promotion of the art of life (FR: 5).

The upward tendency of the universe is therefore to some extent the same as the power of life. The movement of the universe is guided by this three-fold urge: "(i) to live, (ii) to live well, (iii) to live better," and Whitehead introduces reason as an essential factor in the acquirement "of the increase in satisfaction." Reason directs and criticizes this urge of life "towards the attainment of an end realized in imagination but not in fact" (FR: 5). It is thus associated with the third urge: reason permits us "to live better," to acquire an increase in satisfaction." As Whitehead summarizes, "reason finds its scope here in its function of the direction of the upward trend" (FR: 18). It is at this point of discussion, at this level of explanation, that Whitehead takes into explicit consideration the element of *novelty*, in order to better elucidate the function of reason.[12] Whitehead argues that "Reason is the organ of emphasis upon novelty" (FR: 15).[13] As we have noted in the previous section, reason is, for Whitehead, intrinsically connected to novelty, so much so that it is identified with its own organ. Conversely, novelty is what reason emphasizes, and so novelty is regarded as the proper object of reason. More specifically, Whitehead bonds together novelty and reason both with

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[12] Whitehead specifies that, commonly speaking, there are two contrasting ways of considering reason. He names them "the Reason of Plato and the Reason of Ulysses, Reason as seeking a complete understanding and Reason as seeking an immediate method of action" (FR: 7-8). He states, "We can think of it as one among the operations involved in the existence of an animal body, and we can think of it in abstraction from any particular animal operations. In this latter mode of consideration, Reason is the operation of theoretical realization. In theoretical realization the Universe, or at least factors in it, are understood in their character of exemplifying a theoretical system. Reason realizes the possibility of some complex form of definiteness, and concurrently understands the world as, in one of its factors, exemplifying that form of definiteness. The older controversies have mainly to do with this latter mode of considering Reason. For them, Reason is the godlike faculty which surveys, judges and understands. In the newer controversy Reason is one of the items of operation implicated in the welter of the process. It is obvious that the two points of view must be brought together, if the theoretical Reason is to be satisfied as to its own status" (FR: 6). We will here refer especially to reason according to the first perspective, namely as a "item of operation implicated in the welter of the process." This is indeed the way Whitehead refers to reason most of the time. On the whole, he considers reason to be a factor of the process, a factor that, on the one hand, operates within the limits of process, but, on the other, is ultimately guided by the infinite urge of comprehension. Reason corresponds to this urge itself for it represents not only a factor among others, but that peculiar factor which continuously transcends itself, moving toward full comprehension of the process in which it takes part.

[13] In *The Function of Reason*, Whitehead capitalizes many concepts such as 'Reason,' 'Fatigue' etc., to emphasize that, despite their common use in language, they are employed as pieces of philosophical jargon. However, we prefer not to follow him in this, since, after all, Whitehead's interpretation of such concepts does not diverge from the common understanding, but instead gives profundity to these ideas, as they are commonly understood.

respect to the lowliest forms of reason – accounted as the pragmatic side of reason – and with respect to its highest forms – accounted as the speculative side of reason (cf. FR: 7-8).[14]

4.1. Novelty in the Pragmatic Side of Reason

On the pragmatic side, Whitehead states:

> In its lowliest form, Reason provides the emphasis on the conceptual clutch after some refreshing novelty. It is then Reason devoid of constructive range of abstract thought. It operates merely as the simple direct judgment lifting a conceptual flash into an effective appetition, and an effective appetition into a realized fact (FR: 18).

Whitehead views reason as *what* is able to transform a "conceptual flash," made possible by the happening of some "refreshing novelty," into an appetition, and the appetition into a "realized fact." This is the way in which it "promotes the art of life." Thus, reason is presented as *the medium* through which life improves itself, advances. Similarly, the advance and improvement of life is made possible first by the original power of reason to emphasize novelty, and second by the "conceptual clutch" begotten by the happening of novelty. The connection between reason and novelty is plainly stated, but how are we to conceive of it? Additionally, how intrinsic is this kind of connection?

If we reexamine the passage quoted above, we can already see a path to an answer. In this passage, Whitehead affirms (i) the precedence of novelty in respect to reason, (ii) the dependence of the process of reason on the happening of novelty, and (iii) the connection (in terms of emphasis) between reason and "the conceptual clutch" determined by novelty. If so, are we to think of the process of reason as penetrating into the experiential happening of novelty, or as merely subsequent to the latter, and only permitted by the novelty of experience?

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[14] It is relevant to note here that Whitehead's distinction between the two functions of reason, resembles the distinction between the two functions of philosophy presented in the introductory section of Part III. Pragmatic reason corresponds to the critical function of philosophy which is mainly based upon concrete experience. Speculative reason corresponds to the constructive function of philosophy which is committed to the formulation of a speculative scheme of thought.

This issue becomes clear when we examine what Whitehead thinks is the opposite of reason. From his original perspective, the antithesis of reason is represented by "fatigue." He argues, "The operations of Fatigue constitute the defeat of Reason in its primitive character of reaching after the upward trend" (FR: 18). Thus, the primitive character of reason corresponds exactly to its "reaching after the upward trend." Reason intercepts the novelties by which the upward trend is made of, and includes them, while "fatigue means the operation of excluding the impulse towards novelty" (FR: 18). In this sense, the preeminence of the happening of novelty is attested over reason, but it seems that reason does not merely uphold the upward trend of nature, but has instead a direct role in it. Reason does not merely depend on the happening of experiential novelty, nor does it alone make novelty advance.. It constitutes an active factor of this trend, and thus we can say that reason "promotes the art of life" insofar as it *realizes novelty*. As a consequence, we must conceive of novelty and reason in terms of a double-bind, more than in terms of a relationship of external dependence or a radical exclusion. On the one hand, at the high stages of natural evolution, novelty requires reason in order to be realized and channeled into the upward trend of nature. On the other hand, the essence of reason in its lowliest activity is to emphasize and grasp novelty, making it effective. In sum, Whitehead claims:

> The essence of Reason in its lowliest forms is its judgments upon flashes of novelty, of novelty in immediate realization and of novelty which is relevant to appetition but not yet to action. In the stabilized life there is no room for Reason. The methodology has sunk from a method of novelty into a method of repetition. […] It provides the judgment by which realization in idea obtains the emphasis by which it passes into realization in purpose, and thence its realization in fact (FR: 15).

At its lowliest forms, reason expresses judgments upon flashes of novelty. As such, these flashes belong to the field of experience. As Whitehead pinpoints, "these flashes are in fact part of the stage itself," namely of where life finds itself at a determinate moment (FR: 16). Moreover, Whitehead indicates how these flashes of novelty can belong to two kinds of novelty. There is a novelty relevant only to "appetition," by which Whitehead – borrowing from Leibniz's jargon – means the essential tendency of mind to be never fully satisfied (cf. PR: 32, Whitehead also calls it the "principle of

unrest").[15] In a sense, we can say that there are some flashes of experience which whet reason's appetite towards further, unrealized possibilities. At this level, there is not 'effective' advance, there is only a process of mentality. This is a novelty which calls out and activates reason, but does not require immediate action. In addition, there is also a novelty which calls reason and its directive power to action. These are cases where the flashes "are the element of vivid novelty of enjoyment" (FR: 16).[16] By enjoyment, Whitehead here refers to physical experience. Enjoyment always means to enjoy of something. Through enjoyment we physically experience something, "a novelty in immediate realization," that requires to be canalized by reason toward a new stand, or a new action.

4.2. Novelty in the Speculative Side of Reason

Thus far, we have examined to what extent novelty and reason are related in the lowliest operations of reason. We will now turn to speculative reason. At the level of speculative reason, which is surely "higher" than pragmatic reason, novelty again plays a prominent role. In a sense, its role here is even more prominent than in the pragmatic side, though the understanding of novelty is slightly different. At the pragmatic level, we saw one kind of novelty relevant to appetition, and another associated with the enjoyment of physical experience. At the level of speculative reason, we find another kind of novelty. Whitehead argues that

> mentality is working at a high level, it brings novelty into the appetitions of mental experience. In this function, there is a sheer element of anarchy. But mentality now becomes self-regulative. It canalizes its own operations by its own judgments. It introduces a higher appetition which discriminates among its own anarchic productions (FR: 27).

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[15] To clarify what kind of appetition Whitehead refers to, consider the following passage: "Appetition, effecting a final causation towards ideal ends which lie outside the mere physical tendency. In the burning desert there is appetition towards water, whereas the physical tendency is towards increased dryness of the animal body. The appetition towards esthetic satisfaction by some enjoyment of beauty is equally outside the mere physical order (FR: 72)."

[16] Whitehead borrows "enjoyment" from Samuel Alexander's masterpiece *Space, Time and Deity*. Cf. PR: 41.

In this case, reason itself is introduced as the source of novelty. It is speculative reason that brings novelty into appetition, and not experiential novelty that whets reason's appetite. From another point of view, reason – conceived of as mental experience – "seeks to vivify the massive physical fact, which is repetitive, with the novelties which beckon. Thus mental experience contains in itself a factor of anarchy" (FR: 26-27).[17] Together with this anarchic element, the specificity of reason is that is also to be self-regulative. Reason shapes new anarchic elements, and by itself discriminates among them.[18] In so doing, reason is now described by Whitehead not only as an active element in the upward tendency of the universe. Reason does not merely order, determinate, and canalize elements into the direction of a "better life." Whitehead goes so far as to say that mental experience *is* "the urge beyond" *per se* (FR: 26). It is worthwhile to note both that "beyond-ness" is a dimension associated to reason, and that reason is itself viewed as "urge beyond." As Whitehead puts it,

> It [reason] thus constitutes itself the urge from the good life to the better life. But the progress which it seeks is always the progress of a better understanding. This is the urge of disinterested curiosity. In this function Reason serves only itself. It is its own dominant interest, and is not deflected by motives derived from other dominant interests which it may be promoting. This is speculative Reason (FR: 30).

Thus we see that reason constitutes that urge to progress from a good life to the better life that we examined before. However, in this case, and in contrast to pragmatic reason, the urge is not deflected by any interest apart that of a "disinterested curiosity."

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[17] For Whitehead, it is this factor of anarchy that enables us to understand order. If we did not have this contrasting element, we could not have any real comprehension or possibility of evaluating order. Cf. FR: 27.

[18] We face here the two dimensions of speculative reason in general: its transcendent character and its self-critical one. Whitehead pinpoints these aspects when he talks about the Greeks. He maintains that "the real importance of the Greeks for the progress of the world is that they discovered the almost incredible secret that the speculative Reason was itself subject to orderly method. They robbed it of its anarchic character [of seers, prophets, etc.] without destroying its function of reaching beyond set bounds. That is why we now speak of the speculative Reason in the place of Inspiration. Reason appeals to the orderliness of what is reasonable while "speculation" expresses the transcendence of any particular method. The Greek secret is, how to be bounded by method even in its transcendence. They hardly understood their own discovery. But we have the advantage of having watched it in operation for twenty centuries" (FR: 52).

The process is always a movement from a good understanding to a better one, and this process is recognized as the heart of speculative reason.

4.3. Reason and Novelty: Two Possible Interpretations

If we now consider the pragmatic and speculative sides of reason together, we notice many points of interest in relation to our question concerning the relationship between novelty and reason. In particular, Whitehead's account of the function of reason permits us to clarify, from a gnoseological perspective, to what extent novelty is admitted to this field of inquiry.

Generally speaking, the first and most general conclusion that Whitehead reached in *The Function of Reason* is that reason represents the organ of novelty, both in regard to pragmatic reason and to speculative reason. As evidence of this, is sufficient to note that Whitehead's definition of reason is itself based upon the essential relationship with novelty.

The connection between reason and novelty can be interpreted according to two different perspectives. Consider the statement: "Mental experience is the organ of novelty" (FR: 26). Its meaning changes on the basis of the way "of" is interpreted. '*Of* novelty' can function as a subjective genitive, or as an objective genitive. In the first case, novelty is the logical subject, and so reason is interpreted as its organ, its instrument. Novelty expresses itself through reason, mental experience. Conversely, we could say that reason represents the way novelty accesses the world, and the highest expression of novelty into the world. This understanding corresponds to the way Whitehead presents speculative reason. Indeed, we saw that he goes so far as to identify reason with "the urge beyond."

In the second case, that of objective genitive, novelty is viewed, from a logical point of view, as the object of the sentence, while reason is the subject. According to this perspective, reason is viewed as what grasps (namely, "the organ that grasps") novelty. According to this view, reason is the organ of novelty, as stomach is the organ of digestion. Furthermore, it is worthwhile to note that this connotation corresponds to Whitehead's description of pragmatic reason, as reported above. With regard to pragmatic reason, we demonstrated that at its lowliest levels reason is what *emphasizes* those flashes of novelty pertaining either to appetition, or to enjoyment. In these cases,

novelty is a matter of experience, and it calls out reason. Novelty is not identifiable with reason, nor with any product of it, such as ideas. For its part, reason has it as its task to grasp and emphasize novelty, in order to determine the course of the upward tendency of the universe.

5. Novelty and Knowledge

These two possibilities for interpreting reason as the organ of novelty allow us to pinpoint with clarity three different kinds of novelty, all present both in Whitehead's conception of the function of reason and in his view of knowledge. In addition, by distinguishing them, we will bring to the surface the difficulties involved in Whitehead's gnoseological account of novelty, as well as the difficulties in his theory of knowledge.

The three kinds of novelty have already appeared in the analysis of the function of reason (cf. §§ 4.1, 4.2). All the three of them are essentially related to reason, yet to a different extent. Two types of novelty can be found out at the pragmatic level, and one at the speculative level. At the pragmatic level, both kinds of novelty are said to belong to experience. They are viewed as flashes of experience. The first type of novelty is related to physical experience. Whitehead refers to it in terms of "enjoyment." Novelty is a process whereby a new datum is enjoyed by us. In this sense, Whitehead says that it is a kind of novelty "in immediate realization." Consequently, reason first emphasizes this process of enjoyment, and then through emphasis determines some action. Insofar as novelty is physical experience, it requires an action which encompasses it.[19]

The second type of novelty is that which appeals to minimal, mental experience. It still belongs to perceptual experience, but cannot be compared with the physical enjoyment of a datum. In this case, there is no enjoyment because there is no novelty in immediate realization. Accordingly, this kind of novelty does not require any action. Rather, this kind of novelty is present when our perceptual experience stimulates the

[19] It is worthwhile to note that "physical experience" has a broad meaning, for Whitehead. For instance, an example of this kind of novelty could be Columbus's discovery of the New World. Whitehead explains this discovery as follows: "Before Columbus set sail for America, he had dreamt of the far East, and of the round world, and of the trackless ocean. Adventure rarely reaches its predetermined end. Columbus never reached China. But he discovered America" (AI: 279).

appetition of reason, that is the appetition of reason towards the upward trend. We can define it as novelty of appetition. Through perception we are pushed toward a certain goal in order to establish some purpose, or to open up some project, but not to act immediately. In this case, reason, by emphasizing a determinate moment, or a determinate flash of experience, makes emerge some new direction in terms of aim, and then selects them. Only later can this purpose be canalized by reason into a realized fact.

Finally, the third kind of novelty is that proper to the speculative side of reason. We have already stated that, at the level of speculation, Whitehead indicates that reason itself is novelty, is "the urge beyond." Indeed, at this level, reason does not refer to experience, nor does it promote novelty by emphasizing a tendency already present in nature. Rather, this speculative reason brings novelty both into appetition, and consequently into action. Reason here represents the active presence of novelty itself. To this extent, reason *produces* novelty (not merely judges upon flashes of novelty), creates flashes of novelty by its own power. These flashes of novelty as products of speculative reason can be properly regarded as "new ideas," conceived of as the pure fruit of the freedom, and the anarchic, imaginative power of reason (cf. FR: 52).

In sum, with regard to the function of reason, novelty is described in three different ways: 1. novelty as the process of the enjoyment of a new datum; 2. novelty as the process of increase and selection of mental appetition; 3. novelty as the speculative process of the arise of new ideas. In the former two descriptions, reason emphasizes a novelty that precedes it, and canalizes it toward an upward trend. In the latter, reason and its ideas coincide with the occurrence of novelty.

If we compare these results with the provisional conclusion reached in § 3, we gain further clarification. In particular, we discover that the description of reason as "the urge beyond," and its process of arising new ideas, are perfectly in line with Whitehead's description of the true advance of knowledge. In both cases, novelty, the new idea arisen, is viewed as a "pure" product of reason, and in both cases it is described as a conceptual actualization of unexpressed possibilities.

However, once we come to the conclusion that, according to Whitehead, novelty enters the world through reason, and especially through its conceptual realization of mere possibilities, two orders of problems emerge. First of all, we must justify how the ideas produced in this way can be adequate to experience. In other words, we must

account for how the novelties reason "invents" – those possibilities conceptually realized – can have cognitive power, i.e., how they can be related to knowledge. This is not to say that Whitehead's perspective does not combine the elements of knowledge and novelty, but it is important to note that he never really clarifies this point. In particular, he does not clarify this point in reference to the advance of knowledge, the adventures of ideas, although they represent some of the primary tenets of his thought. Second, if we are to investigate further the process whereby reason actualizes mere possibility, even in *Process and Reality* we will not find a specific, clear formulation of this process, at least not from a gnoseological perspective.[20] In the case of Peirce, we examined a precise method of discovery; with regard to Whitehead, however, we cannot extrapolate any specific logical theory concerning novelty, or at least nothing comparable to the degree of formality and elaboration of abduction.[21] It also is worthwhile to note that in the first two types of novelty, the problem is analogous. We have said that reason grasps novelty, or – better yet – emphasizes novelty, but even here Whitehead does not explain how it is possible. This lack of clarity represents a deficiency of Whitehead's thought, but this is probably due to the fact that Whitehead does not feel the exigency of justifying knowledge, since, in his view, subjectivity is a factor of the process of the universe. Perhaps, from his organicistic point of view, the way he justifies this deficiency is to re-connect it to the experience of the entire universe. Indeed, as he says, ultimately "every scrap of our knowledge derives its meaning from the fact that we are dependent on the universe experience" (SP: 110).

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[20] In *Process and Reality* Whitehead addresses this topic when he speaks of the ingression of eternal objects, especially in reference to conceptual prehensions and reversions. Cf. PR: Part I, Ch. 3; Part II, Ch. IX and especially Part III, Ch. 4. Accordingly, we can say that eternal objects correspond to novelty, to those unrealized possibilities, and that reason grasps them through those kinds of prehensions. We can even mention God as a factor of the possibility that novelty (namely, eternal objects) can enter into the world. Nevertheless, Whitehead always emphasizes the fact that novelty derives from actual facts (cf. PR: 94, 249-250). This might lead one to expect that Whitehead would elaborate more on the way we get new ideas, but he does not. Furthermore, if we refer to *Process and Reality*, we see that the conceptual actualization of possibilities, and so the ingression of novelty, is not at all a matter of knowledge, but is rather a process of evaluation (cf. in particular PR: 382-383).

[21] He only refers to the Greeks as those who developed the method of discovery which is the proper method of speculative reason, and lists all the criteria this method must follow in order to be successful (cf. FR: 21).

Chapter 3

Whitehead's Cosmological Account of Novelty

In this chapter we will explore Whitehead's interpretation of cosmology and the extent to which it takes novelty into account. In accordance with the distinction made in the introductory section of Part III (cf. especially Part 3, § 2.2.3), we will examine the constructive side of philosophy, or, more precisely, the function of philosophy that is committed to the elaboration of a cosmological scheme. On the whole, this chapter will focus on the analysis of *Process and Reality*, Whitehead's *magnum opus*, which is expressly devoted to cosmology.

1. Whitehead's Conception of Cosmology: Main Characteristics

1.1. Whitehead's General Approach to Cosmology and Its Meaning

As we have seen in Peirce, cosmology might be mixed with general physics.[1] In Whitehead's general approach to cosmology, however, we do not find any trace of ambiguity in this regard. On the contrary, in *Science and the Modern World*, and even in earlier writings,[2] Whitehead sees cosmology as a specific, philosophical discipline.

Whitehead never offers a proper definition of cosmology, but we can easily grasp what he means by it if we examine both *Science and the Modern World* and *Adventures of Ideas*. From Whitehead's point of view, those books are supplementary to *Process and Reality*,[3] and if we are to clarify Whitehead's concept of cosmology, it is helpful to

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[1] Although it may at first seem that cosmology and physics are combined in Peirce's philosophy, we have demonstrated that ultimately this is not the case. In fact, it is Peirce himself who feels the need to clarify this point and resolve this ambiguity (cf. Part II, Ch. 3, § 1.2).

[2] Although in a different context, Whitehead's concept of cosmology can be found in *Space, Time and Relativity* (1915), as well as in *The Aims of Education and Other Essays*; AE: 164.

[3] Whitehead explains the connections among his works as follows: "The three books – *Science and The Modern World*, *Process and Reality*, *Adventures of Ideas* – are an endeavour to express a way of understanding the nature of things, and to point out how that way of understanding is illustrated by a

analyze these books. In some of their passage[4] Whitehead provides detailed descriptions of other cosmologies, that is of cosmologies that belonged to other epochs or philosophers. By looking at his descriptions of these cosmologies, and by seeing how he takes them into account, we can understand what he means by "cosmology" even more clearly than by studying Whitehead's accounts of his own cosmology.

Whitehead's idea of cosmology emerges with clarity in the preface to *Science and the Modern World*. In those pages Whitehead speaks of "cosmology" in terms of "the view of the world," namely a general but unitary idea of the universe, implied by each culture, civilization, or epoch. He states:

> This study has been guided by the conviction that the mentality of an epoch springs from the view of the world which is, in fact, dominant in the educated sections of the communities in question. There may be more than one such scheme, corresponding to cultural divisions. The various human interests which suggest cosmologies, and also are influenced by them, are science, aesthetics, ethics, religion. In every age each of these topics suggests a view of the world. In so far as the same set of people are swayed by all, or more than one, of these interests, their effective outlook will be the joint production from these sources. But each age has its dominant preoccupation; and, during the three centuries in question, the cosmology derived from science has been asserting itself at the expense of older points of view with their origins elsewhere (SMW: viii).

Thus, first of all, Whitehead considers cosmology to be a factor of mentality, or even mentality itself, since it expresses the *general view of the world* of a limited period of time. For this reason, cosmology is primarily a matter of philosophy. By "cosmology," we refer at once to that general perspective presupposed by every element of an epoch, and to that outlook that concerns the totality of things. As follows from the passage quoted above, a "view of the world" is implied by every epoch, and this "view of the world" is likely what defines an epoch. In addition, cosmology is determined or influenced by the various "human interests" which are at the basis of disciplines such as science, aesthetics, etc. Whitehead states that there is always one interest that prevails

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survey of the mutations of human experience. Each book can be read separately; but they supplement each other's omissions or compressions" (AI: vii).

[4] Cf. in particular SMW: 1-114 and AI: 119-139.

over the others, and that, in the period between the seventeenth and the nineteenth centuries,[5] cosmology has been especially derived from science. For this reason, in Whitehead's writings cosmology can never be reduced to general physics; rather, it is similar to the concept of *Weltanschauung*, albeit not in the strong sense proposed by Dilthey. As this is Whitehead's conception of cosmology, we can deduce that every act, statement, or result we reach in our modes of experience (of life and of society) implies and modifies our "view of the world."

The term 'cosmology' is also adopted by Whitehead as a technical term.[6] Thus far we have examined 'cosmology' as a "total implication" in the sense of the implication of a total, comprehensive view of the universe and everything is contained in it – a total implication that is always present. Cosmology is entailed by our acts and interests, and in different proportions it is changed by them.

We can also consider cosmologies in accordance with different levels of generality. For instance, to a higher degree of generality we can speak of the cosmology of our contemporary epoch, and then, decreasing the generality, we can speak of the cosmology of contemporaneous European society, or of the cosmology of the Italian Millennials,[7] the cosmology of biologists etc., going so far as to speak finally of "my" cosmology. The difference between theese cosmologies does not lie in the degree of generality; the perspectives are all "views of the world," and so all of them equally are 'total implications'. Instead, the difference among them relies more on their degree of acceptance. As Whitehead points out in the quote above, all these types of cosmologies differ not in the sense that "my cosmology" is more particular than the one of Italian

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[5] One century later, we can still observe that science is the predominant factor at the basis of our mentality, in comparison with aesthetics, ethics, etc.

[6] My interpretation diverges from the clear and insightful account of cosmology provided by Kann (cf. Kann 2010: 30-33). This is not a case of opposite interpretations, however. Rather, I adopt a different criterion of discrimination. I distinguish Whitehead's cosmological accounts on the basis of the antithesis of implicit-explicit, unexpressed-expressed. In particular, my interpretation has been influenced by Enzo Paci's considerations on the topic. Paci pinpoints that, for Whitehead, "it is not cosmology understood as a science. From a strictly scientific perspective, a cosmology can be wrong. However, this does not mean that for ages people effectively did not feel the life of the universe, namely the *cosmos* in a determined way, characteristic of a specific civilization in a specific epoch" (Paci 1960: 181). Paci's interpretation is supported by the fact that Whitehead never states that a cosmology is "wrong," but only emphasizes the strict connection between a cosmology and an epoch, or – as we have seen – a group of people, etc. Cf. also Sini 1965: 129-190.

[7] "Millennials," or "Millennial Generation," or "Generation Y," is the name coined for the demographic cohort born between the 1980s and 2000s. Cf. Strauss-Howe 2000.

Millenials, but rather that – to insist on a more improbable case – "my cosmology" is accepted only by me, while that of Italian Millennials by millions of people. These kinds of cosmologies all exist, in their differences, and we could probably identify millions of them. In all these cases, philosophy (and sociology as well) can study cosmology in order to pinpoint the characteristics which make each cosmology unlike the others, but *per se* the cosmologies now considered are not philosophical objects. In other words, they are not products of philosophy.

This brings us to the more technical use of "cosmology" employed by Whitehead – the extent to which cosmology can be properly considered a product of philosophy. Whitehead does not give a specific name to this kind of cosmology – for the purposes of clarity we will call it "philosophical cosmology" – but his arguments imply such a distinction. "Philosophical cosmology" does not correspond to the view of the world belonging to philosophers, but rather to a commonly held view of the world, so widespread that it has been articulated and expressed in philosophical discourse in the most exhaustive way. We could say that in the history of the world, there are moments in which certain philosophers have embodied the *Zeitgeist* of their time, giving to their coeval mentality *one* complex, coherent, logical philosophical expression accounting for everything they have experienced. Whitehead is referring to these kinds of philosophical cosmologies, when he states at the beginning of *Process and Reality* that:

> The history of philosophy discloses two cosmologies which at different periods have dominated European thought, Plato's *Timaeus*, and the cosmology of the seventeenth century, whose chief authors were Galileo, Descartes, Newton, Locke. In attempting an enterprise of the same kind, it is wise to follow the clue that perhaps the true solution consists in a fusion of the two previous schemes, with modifications demanded by self-consistency and the advance of knowledge. The cosmology explained in these lectures has been framed in accordance with this reliance on the positive value of the philosophical tradition (PR: xiv).[8]

[8] As Weber has pointed out (cf. Weber 2010), the fusion of the two previous cosmologies in Whitehead's cosmology does not seem to be successful. Nonetheless, it is worthwhile to note that Whitehead proposes that his cosmology will overcome them, and that he intends to take advantage of the previous cosmologies.

Accordingly, the main philosophical cosmologies that dominate European thought are Plato's *Timaeus* and the cosmology of the seventeenth century. They help us to understand what a philosophical cosmology is, namely, a coherent, logical philosophical expression of a cosmology. From another perspective, and emphasizing again the difference between cosmology and philosophical cosmology, we can say that, on the whole, cosmology is unconscious (implicit and not fully elaborated), while philosophical cosmology is by definition conscious.[9] In other words, cosmology *per se* is a *total implication*, while philosophical cosmology is a *total hypothesis*. This distinction indicates that, just as for Peirce, although for different reasons, Whitehead's cosmology covers every element of our experience of the universe. It does not take into account only the physical universe. As Cristoph Kann says, Whitehead's "philosophical cosmology integrates all dimensions of human experience" (Kann 2010: 42), and of experience in general.

In the above citation, Whitehead remarks that cosmologies are connected by and expressed in schemes. The schematic characteristic of cosmology needs to be further clarified by analyzing the relationship of cosmology to metaphysics and speculative philosophy.

1.2. Whitehead's Metaphysics: Speculative Philosophy and Cosmological Scheme

1.2.1. Speculative Scheme as Cosmological: Its Essential Features

From the previous section, we can deduce that, according to Whitehead, cosmology does not consist either in a cosmogony, or in a mere general account of physics. Cosmology offers an explanation for the genesis of the universe, as well as for general physics, but only as a consequence. The essential goal of Whitehead's cosmology is to provide "a general view of the world," i.e., to formulate a hypothesis able to explain everything, with regard to every possible connection, and from every conceivable perspective. This "total hypothesis" is presented by Whitehead in terms of a scheme, a scheme of general ideas through which we can interpret everything. According to Whitehead, this is a "speculative scheme." When Whitehead speaks of "speculative

[9] Whitehead states, "In my view the creation of the world is the first unconscious act of speculative thought; and the first task of a self-conscious philosophy is to explain how it has been done" (AE: 164).

cosmology" or "speculative scheme," it is the same. Consider for instance the first pages of *Process and* Reality. The subtitle of the book reports that it is an "essay in cosmology," so one could imagine that Whitehead opens his treatise with an insight upon cosmology. On the contrary, however, the work begins with a clarification of "speculative philosophy." Later on, Whitehead refers equally to "speculative scheme" and "cosmological scheme." Given that we have already introduced speculative philosophy (cf. Part III, § 2.2.3), as well as Whitehead's view of "philosophical cosmology," we can already understand, at least a little, why he regards them to be equivalent. To put it plainly, speculative philosophy and cosmology strive equally for universality, and, accordingly, they both can be conceived of as the highest point of metaphysics.[10] For instance, if we analyze their relationship starting from the conception of cosmology, we will note that every cosmological scheme corresponds to a speculative one. A cosmological scheme is a scheme of general ideas, and the formulation of general ideas and their mutual connections constitutes the subject of speculative philosophy.

The description of a cosmological scheme is accordingly what we have discussed in Part III, § 2.2.3, with regard to speculative philosophy. I will here recall it and explain it further.

Process and Reality opens with the following description:

> This course of lectures is designed as an essay in Speculative Philosophy. Its first task must be to define 'speculative philosophy', and to defend it as a method productive of important knowledge. Speculative Philosophy is the endeavour to

[10] It is worthwhile to note that, from *Science and the Modern World* onwards, and especially in *Process and Reality,* Whitehead speaks of metaphysics not as the proposal of a dogmatic standpoint, but with the same critical perspective we analyzed in Part III, Ch. 2, in regard to knowledge. With regards to metaphysics, he indeed argues, "The point is, that speculative extension beyond direct observation spells some trust in metaphysics, however vaguely these metaphysical notions may be entertained thought. Our metaphysical knowledge is slight, superficial, incomplete. Thus errors creep in. But, such as it is, metaphysical understanding guides imagination and justifies purpose. Apart from metaphysical presupposition there can be no civilization" (AI: 128). Thus, given the intrinsic limitation of our metaphysical efforts, I consider speculative philosophy and cosmology to be the highest point of metaphysics, because there is no scheme more general than these. On this point I am partially in line with Kann's standpoint. Kann states, "What is of particular relevance for Whitehead's cosmology, however, is not the complete generality of metaphysics, but rather the present cosmic epoch or stage of reality as exemplifying the most general metaphysical characters (PR: 90, 441)" (Kann 2010: 29). I agree with the emphasis Kann places upon the "cosmic epoch as exemplifying the most general metaphysical characters," but I maintain that, according to Whitehead, there is no other way of doing metaphysics than cosmology, because metaphysics can itself be considered, in its highest degree, to be cosmology.

> 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 (PR: 3).

Apart from his introduction of speculative philosophy as a "method productive of important knowledge,"[11] Whitehead indicates that speculative philosophy aims at a general system, made up of "general ideas in terms of which every element of our experience can be interpreted." Accordingly, the goal of speculative philosophy is to interpret every element of our experience. In order to reach this goal, the system of speculative philosophy must be: (a) coherent, (b) logical, (c) necessary, (d) applicable, and (e) adequate. 'Coherent', 'logical' and 'necessary' describe the rational side of the scheme, while 'adequate' and 'applicable' describe the empirical side.

By (a) 'coherence', Whitehead means that all the ideas of the scheme, and their differences, are mutually required, so much so that "in isolation they are meaningless" (PR: 3). (b) 'Logical' implies both that the definitions of these ideas must be constructed in logical terms, including principles of inference, etc., and that the scheme must be consistent, with no contradiction. (c) 'Necessary' requires that the philosophic scheme bears in itself "its own warrant of universality throughout an experience" (PR: 4).[12] (d) 'Applicable' means that the scheme must allow for the possibility of being applied to elements of experience, both in the case that an experience is already present, or still to come. (e) 'Adequate' does not mean that the scheme is suited to every set of facts the scheme takes into consideration, but rather that "the texture of observed

[11] A remark not at all odd, if we remember that for Whitehead "important" is a piece of philosophical jargon. Cf. the analysis we made in Part II, Ch. 2, § 2.2.

[12] In these introductory pages Whitehead defines 'necessity' in terms of "communication," understood according to its Latin etymology: 'put-in-common', 'share'. However, it is impossible to understand Whitehead's meaning of necessity without connecting it to his general conception of 'universality'. For instance, as he puts it in *Symbolism*, "Universality of truth arises from the universality of relativity, whereby every particular actual thing lays upon the universe the obligation of conforming to it. Thus in the analysis of particular fact universal truths are discoverable, those truths expressing this obligation" (S: 39). Given this meaning of universality as universality of relativity, we can also understand the notion of 'necessity', and comprehend why Whitehead states at the beginning of *Process and Reality* that "the doctrine of necessity in universality means that there is an essence to the universe which forbids relationships beyond itself, as a violation of its rationality" (PR: 3).

experience, as illustrating the philosophic scheme, is such that all related experience must exhibit the same structure" (PR: 3-4). In other words, it must be adequate for the interpretation of further facts that will open to us.

1.2.2. Like the Flight of an Airplane: How to Reach a Philosophical Scheme

How does speculative philosophy attain such a scheme? To explain the method of metaphysics, the method of metaphysical discovery, Whitehead proposes the well-known metaphor of a flight of an airplane. He states:

> The true method of discovery is like the flight of an aeroplane. It starts from the ground of particular observation; it makes a flight in the thin air of imaginative generalization; and it again lands for renewed observation rendered acute by rational interpretation (PR: 5).

In this metaphor, Whitehead distinguishes three stages of metaphysical discovery: observation, generalization, and renewed observation (cf. Christian 1962, 49). The most peculiar of these is generalization, about which Whitehead writes that "the study of philosophy is a voyage towards the larger generalities" (PR: 10). How does this happen and how to explain it? In the imagine of the airplane, Whitehead refers to generalization as "imaginative," while elsewhere he talks about a "descriptive generalization" (PR: 10), in opposition to the deductive method of mathematics. Whitehead writes,

> The term 'philosophic generalization' has meant 'the utilization of specific notions, applying to a restricted group of facts, for the divination of the generic notions which apply to all facts' (PR: 10).

From this we see that descriptive and imaginative generalization are not opposite views of generalization. Instead, they can be viewed as complementary, and their difference can be noticed if we consider the objects they generalize. On the one hand, descriptive generalization concerns the facts that determine the construction of the scheme. Descriptive generalization is, in Whitehead's own words, generalization of the "particular factors discerned in particular topics of human interest; for example, in physics, or in physiology, or in psychology, or in aesthetics, or in ethical beliefs, or in sociology, or in languages conceived as storehouses of human experience" (PR: 5). On

the other hand, imaginative generalization concerns those facts "the author of the scheme did not have in mind or even could not have had in mind right from the start" (Kann 2010: 37). In this sense, imaginative generalization is based on what Whitehead calls "imaginative rationalization" (PR: 5).

In addition, as Whitehead explains in *Religion in the Making*, descriptive generalization embraces two kinds of elements belonging to two different routes of analyses. There is one analysis of the actual world, "passing in time," and another analysis of "those elements which go to its formation" defined by Whitehead as "not themselves actual and passing; they are the factors which are either non-actual or non-temporal, disclosed in the analysis of what is both actual and temporal" (RM: 76-77).

Thus far, we have explored Whitehead's conception of cosmology and his understanding of cosmology in terms of speculative scheme. We have also indicated how, according to Whitehead, it is possible to reach such a scheme. Having established these necessary premises, we can finally focus on Whitehead's own proposal of cosmology – his cosmological scheme – introducing it by illustrating its main characteristics, and the basic elements that compose it.

1.3. Main Characteristics: Philosophy of Organism and the Role of Experience

There are two ways of introducing Whitehead's cosmological scheme. We can illustrate the "scheme of ideas, in terms of which the cosmology is to be framed" (PR: xi), or we can describe its general features considering the schema as a whole. Given the complexity of Whitehead's categories, it is far preferable to beginning from the general characterization of his scheme. If we are to understand Whitehead's scheme, there are two essential characteristics we must account for. These characteristics are so essential that if we did not consider them, we would miss the point of Whitehead's speculative idea, and completely misconstrue it. The first characteristic is summarized by the definition of "philosophy of organism,"[13] and the second concerns the role of experience.

"Philosophy of Organism" is the name Whitehead himself attributes to his speculation. He first formulates this conception in *Science and the Modern World*,

[13] For a detailed analysis, cf. Cesselin 1950, Orsi 1955 and, more recently, Henning 2005: 11-40.

where he tries to reach an "alternative philosophy" to materialism (SMW: 193). In seeking a new, more comprehensive understanding of nature, Whitehead believes that the traditional scientific materialism must be abandoned, and substituted with a "system of thought basing nature upon the concept of organism, and not upon the concept of matter" (SMW: 76). 'Organism' is thus presented as the key-concept of his philosophy, in opposition to 'matter' and the philosophical concept of 'substance', which is ultimately what makes it possible to construe nature in terms of matter.

Accordingly, Whitehead does not use the term 'organism' to mean a specific object of a restricted field of inquiry, i.e., biology. Rather, Whitehead considers the organism to be the basic structure of experience, so that every category of thought (from the physical to the metaphysical) must be grounded in it. To assume the notion of organism implies, as we have already seen in Part III, Ch. 1, a repudiation of the Aristotelian couple of substance-predicate. But what does it mean to recognize organism as the basic character and structure of experience? What does 'organism' stand for?

First of all, by 'organism' Whitehead means "the emergence of some particular pattern as grasped in the unity of a real event" (SMW: 105). Consequently, insofar as this pattern emerges in the unity of a real event, the philosophy of organism will be an "atomic theory of actualities'" (PR: 27), but not in the sense that for Whitehead experience is composed of detached events. The philosophy of organism is "mainly devoted to the task of making clear the notion of 'being present in another entity" (PR: 50). In this way, it is similar to biology, which never understands an organism in isolation, apart from its relations with other organisms and the environment. In this respect, Whitehead clarifies that

> In the philosophy of organism it is held that the notion of 'organism' has two meanings, interconnected but intellectually separable, namely, the microscopic meaning and the macroscopic meaning. The microscopic meaning is concerned with the formal constitution of an actual occasion, considered as a process of realizing an individual unity of experience. The macroscopic meaning is concerned with the givenness of the actual world, considered as the stubborn fact which at once limits and provides opportunity for the actual occasion (PR: 128-29).

Thus we see that the meaning of 'organism' is double. 'Organism' illustrates both the structure of every actual occasion, which is the minimal (experiential) part of the

universe, and the actual world, conceived as the stubborn fact of every actual occasion. But even the universe is in process. It is not conceived of as a static environment. We can also say that if, at the microscopic level, 'organism' is referred to by Whitehead as "the process of realizing an individual unity of experience" (PR: 128), then, at the macroscopic level organism describes the continuous "expansion of the universe" (PR: 214). Furthermore, these two levels, the microcosmic and the macrocosmic one, with their own concepts of organism, are intertwined. Whitehead indeed specifies that

> each actual entity is itself only describable as an organic process. It repeats in microcosm what the universe is in macrocosm. It is a process proceeding from phase to phase, each phase being the real basis from which its successor proceeds towards the completion of the thing in question. […] Each actual entity, although complete so far as concerns its microscopic process, is yet incomplete by reason of its objective inclusion of the macroscopic process (PR: 215).

Thus, on the one hand, Whitehead's 'philosophy of organism' aims on the one hand to disclose that the fundamental and inexorable fact of experience (and therefore reality) is *process* (cf. MT: 52-53). In particular, since the philosophy of organism avoids the 'substance-quality' concept, "that morphological description is replaced by description of dynamic process" (PR: 7). On the other hand, the philosophy of organism emphasizes the dimension of connectedness, the being connected of every element and the essential *togetherness* of things.

In spite of this clarification, a possible misunderstanding remains. This misunderstanding consists in an ultimate interpretation of organism, but especially of process, in substantialistic terms. The question remains, what is the character of the process, if it is exactly the opposite of substance? How do we conceive of its essence without appealing to matter? How do we conceive of it if not in the sense of a succession of parts? The answer relies on Whitehead's conception of experience, which we will consider here as the second essential characteristic of Whitehead's cosmology.[14]

[14] Whitehead's use and concept of experience is probably the most original character of his cosmology, and therefore it is also what makes his thought harder for us to understand. This is due to the fact that to assume process instead of matter, and experience instead of substance, is far from our current mindset, based as it is on an antithetical, millenarian thought. We experience difficulties in understanding Whitehead's speculative scheme because it is built upon an unusual perspective, compared to that which we assume in our daily life. Moreover, Whitehead's scheme is frequently described in laborious jargon

Experience plays at least three fundamental roles in *Process and Reality*, and in Whitehead's philosophy generally. As we have already mentioned in § 1.1 and § 1.2, the goal of speculative philosophy is to explain experience. To this extent, experience can be considered as the judge of philosophy. Whitehead writes that "the elucidation of immediate experience is the sole justification for any thought" (PR: 5). To refer to the metaphor reported in § 1.2.2, experience must be the point on which the airplane of metaphysics lands. Moreover, experience is also the field from which the metaphysical flight begins. We have indeed seen (cf. § 1.2.2) that metaphysics is, in its first stage, a descriptive generalization, and so it relies on experience. For this reason, we can, on the one hand, consider the elucidation of experience to be what gives meaning to Whitehead's cosmology, and, on the other hand, we can view Whitehead's cosmology as an "ontology of integral experience" (Vanzago 2001: 310); that is, an ontology founded on experience in its broadest sense.

Whitehead's radical speculative perspective, opened up by the centrality of experience, can be easily grasped if we it take the differences between Whitehead and Kant into account. By examining these differences, we can realize how far our usual conception of philosophy is from a philosophy stemming from experience, as in the case of Whitehead.

Whitehead asserts that the philosophy of organism is an inversion of Kant's philosophy. He argues that Kant "describes the process by which subjective data pass into the appearance of an objective world," while he "seeks to describe how objective data pass into subjective satisfaction, and how order in the subjective data provides intensity in the subjective satisfaction" (PR: 88). He maintains that,

> For Kant, the world emerges from the subject; for the philosophy of organism, the subject emerges from the world – a 'superject' rather than a 'subject'. The word 'object' thus means an entity which is a potentiality for being a component in feeling; and the word 'subject' means the entity constituted by the process of feeling, and including this process. The feeler is the unity emergent from its own feelings; and feelings are the details of the process intermediary between this unity and its many data. The data are the potentials for feeling; that is to say, they are

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which Whitehead adopts out of the desire to find an expression more adherent to experience and its processual structure.

> objects. The process is the elimination of indeterminateness of feeling from the unity of one subjective experience (PR: 88).

Accordingly, in Whitehead's perspective, when based on the process of experience, almost every philosophical concept undergoes revision. 'Object' becomes "a potential for being a component of feeling," while 'subject' becomes 'superject', conceived of as "the unity emergent from the process of feeling."

But Whitehead goes even farther with regard to experience. As we have already mentioned in regard to object and subject, for Whitehead, experience does not stand at the margins of philosophy. It is not only the point of departure and the point of arrival for philosophical adventure, but rather it plays a pivotal role within cosmology, in the cosmological scheme *per se* – or at least in Whitehead's cosmological scheme.

In the analysis of the notion of 'organism', we have already said that organism is not another name for matter. Experience is the 'texture' of organism, and organism is conversely adopted to indicate experience. Therefore, if we want to answer the question, "What is the character of the process?" i.e., if we want to understand process not from a substantialistic perspective, then we must focus, above all, on this 'nature' of process. In other words, we need to understand process as experience. As Whitehead puts it, "The process is nothing else than the experiencing subject itself" (PR: 16). To this extent, we can interpret Whitehead's peculiar standpoint as "pan-experientialism."[15] By pan-experientialism I do not mean a form of pan-psychism, but rather a theory according to which every object of investigation must be interpreted in terms of experience itself; that is, insofar as it is experienced and in the way it is experienced.[16] According to Whitehead, there is nothing apart from what enters into the process of experience, and the only way to understand that everything enters into this process of experience is to give a satisfactory description of *the way it is experienced*. But if we examine what we pointed out just now in reference to "process," we must deduce that experience does not

[15]Griffin was the first to coin this term, although with a different meaning, on the occasion of a conversation with J.B. Cobb. Cf. Cobb/Griffin 1977. For an exhaustive account of pan-experientialism, see Griffin 2007.

[16]This is indeed in agreement with Whitehead's reformed subjectivist principle, according to which "apart from the experiences of subjects there is nothing, nothing, nothing, bare nothingness" (PR: 167).

only represent the "test" for a speculative scheme, nor the starting point of a philosophy. Rather it is in fact the key to Whitehead's cosmology.

If we turn to Whitehead's speculative scheme, we see that it is not only a scheme of general ideas adequate to interpreting our experience. Instead, the greater part of his categorical scheme is formulated according to the methodological suggestion reported for process, and thus every category *retains in itself the* '*mark of experience*'. Experience, as a methodological requirement, now becomes a matter of content. It is converted from a style of thought into a philosophical hypothesis. For instance, consider "actual entities."[17] They constitute a fundamental part of Whitehead's cosmological scheme by allowing us to interpret experience adequately. By definition actual entities are conceived not as substances, but as unities of experience. Thus we can say that experience determines, connotes, and "forges" even the cosmological scheme and its categories. Experience is the key to understanding every cosmological category in itself. To put it another way, in *Process and Reality,* an 'actual entity' is not only an adequate category for interpretation, but it is a drop of experience *per se*. This understanding of experience is essential to understanding the entirely of Whitehead's categorical scheme, as we will see in the next section. In addition, this explanation of the main features of Whitehead's cosmology helps us understand the synthetic account Whitehead offers of his philosophy of organism. Whitehead states:

> The aim of the philosophy of organism is to express a coherent cosmology based upon the notions of 'system', 'process', 'creative advance into novelty', '*res vera*' (in Descartes's sense), 'stubborn fact', 'individual unity of experience', 'feeling', 'time as perpetual perishing', 'endurance as re-creation', 'purpose', 'universals as forms of definiteness', 'particulars' – i.e., *res verae* – as ultimate agents of stubborn fact (PR: 128).

I will now consider closer some of those notions which represent some of the most important categories in Whitehead's complex speculative scheme.

[17] As we will see later, they are the final facts of which the world is made.

1.4. Metaphysical Categories

In addressing Whitehead's categories, it is first and foremost necessary to reaffirm their provisional nature. As Whitehead states, "Metaphysical categories are not dogmatic statements of the obvious; they are tentative formulations of the ultimate generalities" (PR: 8). Accordingly, we must interpret categories as *attempts* to formulate the ultimate generalities. Moreover, as Whitehead specifies in *Process and Reality*, Part I, Ch. 2, the categorical scheme *per se* is not intelligible. All the discussions following this chapter in *Process and Reality* are indeed needed to make it intelligible, to prove its coherence, logical consistency, necessity, applicability, and adequacy.

The four notions that Whitehead says must be singled out from the scheme are *actual entities*, *prehensions*, *nexus*, and *the* '*ontological principle*'.

1) *Actual entities*, or *actual occasions*, are "the final real things of which the world is made up of" (PR: 18). In this sense, Whitehead calls them '*res verae*', not in the sense of substances, but understood as "drops of experience, complex and interdependent" (PR: 18). The label 'actual entities' accounts for everything representing an actual unity of experience, from God to "the most trivial puff of existence in far-off empty space." Furthermore, Whitehead maintains that "there is no going behind actual entities to find anything more real"(PR: 18).
2) *Prehensions* are "the most concrete elements in the nature of actual entities" (PR: 19), and they are presented as a "generalization of Descartes's mental 'cogitations'" (PR: 19). The term 'prehension' stands for "the general way in which the occasion of experience can include, as part of its own essence, any other entity, whether another occasion of experience or an entity of another type. This term is devoid of suggestion either of consciousness or of representative perception" (AI: 300). In addition, every prehension consists of three factors: "(a) the 'subject' which is prehending, namely, the actual entity in which that prehension is a concrete element; (b) the 'datum' which is prehended; (c) the 'subjective form' which is how that subject prehends that datum" (PR: 23).
3) *Nexus* refers to every "particular fact of togetherness among actual entities" (PR: 20). More plainly, Whitehead defines *nexus* as "a set of actual entities in

the unity of the relatedness constituted by their prehensions of each other, or – what is the same thing conversely expressed – constituted by their objectifications in each other" (PR: 24).

4) *The 'ontological principle*' "means that actual entities are the only *reasons*; so that to search for a *reason* is to search for one or more actual entities" (PR: 24). From another perspective, "according to the ontological principle there is nothing which floats into the world from nowhere. Everything in the actual world is referable to some actual entity. It is either transmitted from an actual entity in the past, or belongs to the subjective aim of the actual entity to whose concrescence it belongs" (PR: 234).

These four notions are indeed part of a complex scheme. Whitehead divides his scheme into four different kinds of categories: (I) The category of ultimate, (II) categories of existence, (III) categories of explanation, (IV) categoreal obligations. All of these are interrelated and interwoven.

(I) With regard to this category, Whitehead writes that "in all philosophic theory there is an ultimate which is actual in virtue of its accidents. It is only then capable of characterization through its accidental embodiments, and apart from these accidents is devoid of actuality. In the philosophy of organism this ultimate is termed 'creativity'" (PR: 7). Thus we see that creativity is ultimate for Whitehead. Creativity is by definition "the ultimate principle by which the many, which are the universe disjunctively, become the one actual occasion, which is the universe conjunctively" (PR: 21). We will explore this concept of creativity in greater detail in § 3.

(II) The categories of existence are eight. They comprise actual entities, prehensions, nexūs (plural for nexus), subjective forms, and eternal objects, but they also include propositions, multiplicities and contrasts. Among these, Whitehead says that actual entities and eternal objects "stand out with a certain extreme finality" (PR: 22), while the other categories have an intermediate character. Having already discussed actual entities, I will here briefly touch upon 'eternal objects'. Whitehead refers to eternal objects as "pure potentials for the specific determination of fact" (PR: 22). He thus conceives of them as potentiality for actual entities. This means, on the one

hand, that they take part in the actual entities' becoming, but it also means, on the other hand, that considered in themselves they are 'pure potentials'. Their importance lies indeed in the fact that they are "the pure potentials of the universe; and [that] the actual entities differ from each other in their realization of potentials" (PR: 149).[18]

(III) There are twenty-seven categories of explanation. These are not classes of 'things', such as the categories of existence, but are general explanatory principles which clarify the relationship between the different categories of existence. They also contribute to a general understanding of Whitehead's cosmology (cf. PR: 22-26).

(IV) There are nine categoreal obligations. If the categories of explanation provide information about the way the categories of experience are connected to one another, the nine categoreal obligations introduce new notions that are connected to the categories of existence, but not explicable merely by analyzing them.[19]

2. Whitehead's Conception of the Universe

The details and complexities of Whitehead's scheme of categories, as described in the section above, contain the key to disclosing his view of the universe. How are we to describe the universe in accordance with his categories? How is the universe to be interpreted on the basis of Whitehead's cosmological scheme?

As indicated in § 1.3, there are two perspectives from which we can analyze the universe according to Whitehead: the macrocosmic and the microcosmic.[20]

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[18] As we will see in § 3, eternal objects are one of the most, or indeed the most, obscure point of Whitehead's philosophy, due to their definition, function, and consistency with the rest of Whitehead's speculative scheme.

[19] These are the categories of subjective unity, of objective identity, of objective diversity, of conceptual valuation, of conceptual reversion, of transmutation, of subjective harmony, of subjective intensity and of freedom and determination. Cf. PR: 25-26.

[20] In the present section, as in the previous one, I do not take God and its role into account. The reason for this choice is that the chapter on categoreal scheme only mentions God as an actual entity (PR: 18). In addition, in *Process and Reality* God does not play a role apart from creativity, or above it. With regards to creativity, the world and God are considered in a similar way (cf. PR: 348). They are explicitly identified as instruments of novelty. Whitehead writes that "both [God and the World] are in the grip of the ultimate metaphysical ground, the creative advance into novelty. Either of them, God and the World, is

2.1. The Universe as a Processual, Organic Unity

From a macrocosmic perspective, the two main features attributable to the universe have already emerged in reference to experience (§ 1.3). These are the organic and processual characters of the universe. Indeed, there is no characteristic of experience that is not a characteristic of the universe as well. But the universe has not only an organic and processual nature, it is a processual and organic *unity*. As Whitehead summarily expresses, "We speak in the singular of The Universe, of Nature, of φυσις which can be translated as Process. There is all-embracing fact which is the advancing history of the one Universe" (AI: 150). Whitehead also refers to this "all-embracing fact" when discussing the Platonic notion of Receptacle.[21] If we analyze Whitehead's universe on the macrocosmic level, we describe it as a unity, but we must not describe it as the kind of unity conceived in accordance with the Aristotelian notion of substance. The universe is always changing, in development and advance. As Whitehead writes, "The alternative is the reduction of the universe to a barren tautological absolute, with a dream of life and motion" (MT: 93).

2.1.1. The Macrocosmic Process: Transition

The unity of the universe "can be translated as Process," Whitehead says in the quotation above.[22] At the macroscopic level, Whitehead describes the process of the universe in terms of "transition." Given that the universe consists of irreducible actualities, "the macroscopic process is the transition from attained actuality to actuality in attainment" (PR: 214). Accordingly, 'transition' for Whitehead does not mean the passage from t_0 to t_1. Neither does it mean to pass from one substance to another. This conception of transition assume a linear temporality, and so to implicitly run into the fallacy of simply location. Whitehead's theory of process is indeed antithetical to this conception of linear progress.[23] To understand 'transition' correctly as a form of

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the instrument of novelty for the other" (PR: 349). A similar stance can be found in Peirce's philosophy. God plays a role in Peirce's thought, but is not considered from a strictly categorical point of view (cf. Turley 1977, 37).

[21] Cf. Faber 2010, 2012 and Klose 2010.

[22] Cf. also MT: 93.

[23] As Whitehead emphasizes in *Science and the Modern World*, "One all-pervasive fact, inherent in the very character of what is real is the transition of things, the passage one to another. This passage is not

process, and accordingly to understand Whitehead's meaning of "the *transition* from particular existent to particular existent" (PR: 210), we must interpret it in terms of actuality and potentiality. In particular, Whitehead emphasizes the necessary connection between process and potentiality. As he explains in *Modes of Thought*:

> The notion of potentiality is fundamental for the understanding of existence, as soon as the notion of process is admitted. If the universe be interpreted in terms of static actuality, then potentiality vanishes. Everything is just what it is. Succession is mere appearance, rising from the limitation of perception. But if we start with process as fundamental, then the actualities of the present are deriving their characters from the process, and are bestowing their characters upon the future. Immediacy is the realization of the potentialities of the past, and is the storehouse of the potentialities of the future. Hope and fear, joy and disillusion, obtain their meaning from the potentialities essential in the nature of things. […] The potentialities in immediate fact constitute the driving force of process (MT: 99-100).

Thus, to admit potentiality, and to conceive of actuality as the realization of past potentialities and the storehouse of future potentiality, is the only way of understanding the universe of Whitehead: namely, its transition. In accordance with this processual viewpoint, the prominent logic adopted in *Process and Reality* is no longer that of substance-predicate, but rather that of actuality-potentiality.[24]

From another perspective, the macrocosmic process of transition describes nothing but the fact that "we are in the present; the present is always shifting; it is derived from the past; it is shaping the future; it is passing into the future. This is process" (MT: 52-53). This is not a trivial conclusion, but what does it imply? Let us consider Whitehead's account of time in terms of potentiality and actuality. From the standpoint

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a mere linear procession of discrete entities. However we fix a determinate entity, there is always a narrower determination of something which is presupposed in our first choice. Also there is always a wider determination into which our first choice fades by transition beyond itself" (SMW: 95).

[24] From my point of view, actual entities and eternal objects are, in fact, Whitehead's reinterpretation of the Aristotelian couple of act and potency. Whitehead confirms this in *Modes of Thought*. He states, "The data of our experience are of two kinds. They can be analysed into realized matter-of-fact and into potentialities for matter-of-fact. Further, these potentialities can be analysed into pure abstract potentialities apart from special relevance to realization in the data or the issue, and into potentialities entertained by reason of some closeness of relevance to such realization" (MT: 94).

of the present, actuality is the actualization of a past potentiality, and it represents a potentiality for the future. But how can it be that an actuality can be a potentiality for the future, if it is indeed fully actualized? The issue is of extreme relevance, insofar as Whitehead considers any actual entity to be essentially finite. It is in trying to elucidate this point that Whitehead first distinguishes two perspectives: a microcosmic one, related to the process of the actualization of a singular actual entity, and a macrocosmic one, related to the universe, and therefore also related to the interconnections among all the different actual entities. As we will see, the first perspective is "concrescence,"[25] and addresses the individual process of actualization of an actual entity. The second is transition, which pertains to the processual relationships among actual entities and constitutes the advance of the universe.

Limiting ourselves to the analysis of transition, we must reformulate our question from the perspective of the present stage of universe. In the present stage of the universe, we find 'actual entities', which are, by definition, fully actualized, and thus finite. Accordingly, when we inquire into the nature of transition, we are concerned with the question: how do actual entities take part in the process of the universe? The answer is *per se* simple: they pass, they transit; yet the explication of this is not simple. Whitehead speaks of a process of "perpetually perishing" (PR: 210). When fully actualized, actual entities perish. But this perishing of actual entities does not correspond to their vanishing away. In passing, perishing, actual entities are objectified. As Whitehead puts it, "The notion of the prehension of the past means that the past is an element which perishes and thereby remains an element in the state beyond, and thus is objectified" (SP: 125).[26] The way an actuality constitutes the potentiality for the future consists in its perishing, that is in its being objectified.[27]

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[25] Regarding the difference between transition and concrescence cf. also Ford 1984: 152; Nobo 1974: 275-278 and 1979: 265-283; Lango 1971: 150-167.

[26] This view of transition and perishing is essential for understanding Whitehead's conception of causality, memory, and even immortality. He states, "If you get a general notion of what is meant by perishing, you will have accomplished an apprehension of what you mean by memory and causality, what you mean when you feel that what we are is of infinite importance, because as we perish we are immortal" (SP: 125).

[27] It is worthwhile to note that this is perfectly in line with the notion of object as potential, illustrated in §1.3.

In summary, at the macrocosmic level, the process of the universe is transition, and transition consists of the perpetual perishing of actual entities. Whitehead considers this to be "the one key thought around which the whole development of *Process and Reality* is woven" (SP: 125). In Whitehead's own words, transition is "fluency whereby the perishing of the process, on the completion of the particular existent, constitutes that existent as an original element in the constitutions of other particular existents elicited by repetitions of process" (PR: 210). Transition, as perpetually perishing, allows us to understand the process of the universe in two respects. On the one hand, it makes clearer the "general temporality which affects all things" (AI: 143) – namely, time is transient, times flies by. On the other hand, it clarifies "the origination of the present in conformity with the 'power' of the past" (PR: 210). In this way, transition describes the process of advance of the universe.[28] For this reason we cannot say that "the universe is not a museum with its specimens in glass cases. Nor is the universe a perfectly drilled regiment with its ranks in step, marching forward with undisturbed poise" (MT: 96).

2.1.2. The Organic Unity of Universe and the Atomism of Actual Entities

I will now explore the second character of the universe: its organic unity. As the analysis of transition has demonstrated, the process of the universe is given by the interplay of actual entities. This is further evidence that the universe's unity is not understood by Whitehead as a monolithic unity, or a static one. The unity of the universe is described as organic, as made up of a variety of actual entities. Whitehead goes so far as to say that the universe is "a solidarity of many actual entities" (PR: 40), and that conversely "the community of actual things is an organism; but not a static

[28] The so-called theory of the fixed past is founded on Whitehead's concept of perpetual perishing. This theory is commonly attributed to Whitehead and has been strongly criticized by many, especially by Mead. Cf. Mead 1929 and Lee 1963, Rosenthal 1996. With regard to this theory, although Whitehead's perspective and emphasis on transition is undoubtedly problematic, it is important to consider it together with concrescence. If we limit our comprehension of Whitehead's process to transition, we must explain why Whitehead specifies in *Modes of Thought*, that "the essence of the universe is more than process" (MT: 100). Here, Whitehead responds to the charge of abolishing the emergence of novelty for fixed past, by underling the importance of the so-called factor of 'deity' in process, co-essential to transition. He describes it in the following way: "Thus there is an essential relevance between deity and historic process. For this reason, the form of process is not wholly dependent upon derivation from the past. As epochs decay amid futility and frustration, the form of process derives other ideals involving novel forms of order" (MT: 103). To this extent, it is due to deity that Whitehead maintains that transition is both a "frustration of the prevalent dominance. And yet it is the realization of that vibrant novelty which elicits the excitement of life" (MT: 87).

organism. It is an "incompletion in process" (PR: 215). For Whitehead, indeed, there are only two possibilities if we want to account the development and changing nature of the universe. He explicitly states: "There then remain two alternatives for philosophy: (i) a monistic universe with the illusion of change; and (ii) a pluralistic universe in which 'change' means the diversities among the actual entities which belong to some one society of a definite type" (PR: 79). Confronted with the radical alternatives of a monistic universe devoid of change and a pluralistic universe filled with change, Whitehead chooses the second option: a pluralistic universe where change is allowed insofar as actual entities diverge from one another. But what does Whitehead mean by 'pluralistic universe'? On the one hand, Whitehead's pluralistic universe indicates that the universe is "a Receptacle uniting all that happens" (AI: 153-54). On the other hand, a 'pluralistic universe' maintains that the ultimate concrete things of the universe, those things which cannot be further discriminated, are the plurality of actual entities. They are really considered by Whitehead as the atoms of the universe. Actual entities are finite, and essentially discrete. Therefore, the concreteness of the universe reveals no continuity. Nevertheless, from a macrocosmic perspective, actual entities are never in isolation, but are always connected to the rest of the actual entities. Whitehead argues, "the ultimate metaphysical truth is atomism. The creatures are atomic. […] But atomism does not exclude complexity and universal relativity. Each atom is a system of all things" (PR: 35-36). Indeed, for Whitehead the universe is the place of connectedness and togetherness, rather than continuity.[29] In this regard, he maintains: "The real point is that the essential connectedness of things can never be safely omitted. This is the doctrine of the thoroughgoing relativity which infects the universe" (AI: 153-54).

In other words, the organic unity of which the universe consists requires connectedness among actual entities, and in its turn this connectedness implies the essential atomic characteristic of Whitehead's philosophy. As mentioned above, process does not stand for mere continuity, but implies discontinuity as well as interconnection. According to Whitehead, "what metaphysics requires is a solution exhibiting the plurality of individuals as consistent with the unity of the Universe" (AI: 168).

[29] It should be noted that Whitehead does not deny continuity *per se*. Rather, for Whitehead the mistake "consists in the confusion of mere potentiality with actuality. Continuity concerns what is potential; whereas actuality is incurably atomic" (PR: 61).

Whitehead reaches this compromise, saving both the unity of *the* universe and the plurality of actual entities by virtue of the concept of organism and process. But what about actual entities? How can they be described in themselves? We will now examine the universe from a microcosmical perspective, intertwined with the one explored here, in order to answer this question.

2.2. The Microcosm of Actual Entities and the Process of Concrescence

The atomism required by Whitehead's organicistic view of the universe has also revealed the elements of the universe at a microcosmic level: namely, actual entities. To analyze Whitehead's view of the universe at the microscopic level, we must therefore analyze actual entities and their process of constitution.[30]

As mentioned in § 1.4, actual entities are "the final real things, of which the world is made up" (PR: 18). More precisely, every actual entity is "an act of experience" (PR: 68). Whitehead explains:

> The authority of William James can be quoted in support of this conclusion. He writes: "Either your experience is of no content, of no change, or it is of a perceptible amount of content or change. Your acquaintance with reality grows literally by buds or drops of perception. Intellectually and on reflection you can divide these into components, but as immediately given, they come totally or not at all (PR: 68).

Actual entities are thus characterized as certain amounts of content or change. Indeed, the most fundamental characteristic Whitehead adopts to describe their unities is again the notion of process. Whitehead himself argues that "each actual entity is itself only describable as an organic process. It repeats in microcosm what the universe is in macrocosm. It is a process proceeding from phase to phase, each phase being the real basis from which its successor proceeds towards the completion of the thing in question" (PR: 215). Thus, it follows that the macrocosmic level is not only intertwined

[30] In this way, we are following the eight categories of explanation of Whitehead's scheme. His scheme maintains "that two descriptions are required for an actual entity: (a) one which is analytical of its potentiality for 'objectification' in the becoming of other actual entities, and (b) another which is analytical of the process which constitutes its own becoming" (PR: 23).

with the microcosmic level: the structures of the former are reflected in the latter, and vice-versa. Furthermore, we can also say that Whitehead gives even greater emphasis to processual character in the case of actual entities than to the universe. It is not the case that the universe is less processual than actual entities. However, an actual entity is indivisible, whereas the universe can be divided into actual entities. For this reason, 'process' is associated with the unity of an actual entity even more strongly than it is associated with the universe. Whitehead argues, "The *how* an actual entity *becomes* constitutes *what* that actual entity *is*; so that the two descriptions of an actual entity are not independent. Its 'being' is constituted by its 'becoming'. This is the 'principle of process'" (PR: 23).[31] Accordingly, an actual entity is a process of becoming, and it is nothing apart from it. As Whitehead states in *Adventures of Ideas*,

> Every essence of real actuality – that is, of the completely real – is *process*. Thus each actual thing is only to be understood in terms of its becoming and perishing. There is no halt in which the actuality is just its static self, accidently played upon by qualifications derived from the shift of circumstances (AI: 274).

To the extent of its perishing, we have already analyzed the process of an actual entity, when we focused on the macrocosmic process of transition (cf. § 2.1.1). In that case, transition was regarded as the process of perishing of actual entities into others. On the contrary, the process of their becoming (that is of actualization, since an actual entity is in the progress of becoming itself), must be now analyzed. How does an actual entity become? How does it actualize itself? In answering these questions, the connectedness of an actual entity remains a concern, but we will no longer focus on how a fully attained actuality is objectified by others. Rather we will consider connections to the extent to which they allow the new formation of an actuality. In other words, we will focus on the way a singular actual entity becomes itself, from all the connections it entertains with others – a process Whitehead calls 'concrescence'.

[31] Cf. also MT: 97. Whitehead puts it in this way: "Process and individuality require each other. In separation all meaning evaporates. The form of process (or, in other words, the appetition) derives its character from the individuals involved, and the characters of the individuals can only be understood in terms of the process in which they are implicated."

Whitehead states that "there is a form of process dealing with a complex form of data and issuing into a novel completion of actuality" (MT: 90). This form of process is 'concrescence', and he illustrates it as follows:

> The word Concrescence is a derivative from the familiar Latin verb, meaning 'growing together'. It also has the advantage that the participle 'concrete' is familiarly used for the notion of complete physical reality. Thus Concrescence is useful to convey the notion of many things acquiring complete complex unity. But it fails to suggest the creative novelty involved: example, it omits the notion of the individual character arising in the concrescence of the aboriginal data (AI: 236).

Accordingly, if *transition* describes the process of the ongoing-ness of actual entities, *concrescence* describes the process of their 'growing together'. It is through this process that a new actual entity arises, although it could be argued that the name 'concrescence' does not convey this sufficiently (cf. also PR: 21, 211). Whitehead maintains that this arising of a new entity and concrescence are indivisible: one cannot abstract the process of a new entity from concrescence, and neither can one conceive of concrescence without the arising of a new actuality.[32] An actual entity is "an instance of concrescence" (PR: 211, 212), and the concrescence of an actual entity can be considered as its process of 'being concrete'. Indeed, Whitehead goes so far as to say that "concrescence is nothing else than the 'real internal constitution' of the actual occasion in question" (PR: 212).

With regard to the process of an actual entity becoming concrete, the first point to make is that, for Whitehead, the process of becoming of an actual entity is a process of self-creation, or "self-formation" (MT: 96), which happens in terms of the realization of potentiality. Whitehead describes it in this way:

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[32] Cf. PR: 211. Whitehead argues: "The most general term 'thing' – or, equivalently, 'entity' – means nothing else than to be one of the 'many' which find their niches in each instance of concrescence. Each instance of concrescence is itself the novel individual 'thing' in question. There are not 'the concrescence' and 'the novel thing': when we analyse the novel thing we find nothing but the concrescence. 'Actuality' means nothing else than this ultimate entry into the concrete, in abstraction from which there is mere nonentity. In other words, abstraction from the notion of 'entry into the concrete' is a self- contradictory notion, since it asks us to conceive a thing as not a thing."

> Process for its intelligibility involves the notion of a creative activity belonging to the very essence of each occasion. It is the process of eliciting into actual being factors in the universe which antecedently to that process exist only in the mode of unrealized potentialities. The process of self-creation is the transformation of the potential into the actual, and the fact of such transformation includes the immediacy of self-enjoyment (MT: 93).

The process of concrescence, that is of progressive determination, actualization, "self-creation," is thus determined by the "self-enjoyment" of the actual entity itself. But this is just one side of concrescence.

In order to reach an appropriate description of an actual entity, we must consider the "the threefold character" of actual entities. Whitehead pinpoints that for every actual entity: "(i) it has the character 'given' for it by the past; (ii) it has the subjective character aimed at in its process of concrescence; (iii) it has the superjective character, which is the pragmatic value of its specific satisfaction qualifying the transcendent creativity" (PR: 87). The first character corresponds to what Whitehead calls elsewhere "the public origins" of actual occasion. The second character corresponds to the "private form" of actual aims, and the third to the "private aim" of actual entity (cf. PR: 290).

These aspects are not three chronological phases of concrescence. They are operative at every step of the process. Insofar as they are characters of an actual entity, they can also be traced in every prehension of actual entity. Recall that an actual entity can be analyzed in terms of prehensions,[33] or feelings.[34] From the opposite standpoint, Whitehead defines 'feelings' as "operations transforming entities which are individually alien into components of a complex which is a concretely one" (PR: 211). Thus they are components of an actual entity in its becoming itself.

If we analyze the formal constitution of an actual entity in terms of this process of feeling, we again find three elements, now indicated as the three stages of the

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[33] Cf. the eleventh category of explanation. Whitehead asserts: "the first analysis of an actual entity, into its most concrete elements, discloses it to be a concrescence of prehensions, which have originated in its process of becoming" (PR: 23). Furthermore, a prehension "consists of three factors: (a) the 'subject' which is prehending, namely, the actual entity in which that prehension is a concrete element; (b) the 'datum' which is prehended; (c) the 'subjective form' which is *how* that subject prehends that datum" (PR: 23).

[34] Feelings are a positive prehension, while a negative prehension is said by Whitehead "to eliminate from feeling" (PR: 23).

concrescence of actual entity. Whitehead calls them "(i) the responsive phase, (ii) the supplemental stage, and (iii) the satisfaction" (PR: 212). The responsive phase corresponds to "the phase of pure reception of actual world in its guise of objective datum for aesthetic synthesis" (PR: 212).[35] The second stage is "governed by the private ideal […] whereby the many feelings […] are transformed into a unity of aesthetic appreciation immediately felt as private" (PR: 212). Satisfaction is "the attainment of the private ideal which is the final cause of concrescence" (PR: 212). In both the latter stages, the emphasis is put upon 'private' in order to underline the irreducible individuality of the process, and so of an actual entity. Indeed, the process of concrescence, of actualization of an actual entity, cannot be conceived apart from the actual world, but it is essentially spontaneous, original, free.[36]

Having discussed the main factors of Whitehead's view of the universe, its process, actual entities, and the two kinds of fluency that cross the universe (i.e., transition at the macrocosmic level, and concrescence at the microcosmic level), we can finally address the question of novelty in Whitehead's cosmology. How does Whitehead's cosmology takes novelty into account? How are we to conceive of novelty?

3. Cosmology and Novelty: The Process of Creativity

We have already seen how Whitehead conceives of his universe as essentially dynamic. In particular, we have described the process of the universe as twofold: it consists in transition, and in concrescence. The development of the universe relies upon both these fluencies. In § 1.4, we mentioned that creativity is ultimate in Whitehead's

[35] This actual world, these data that constitute the first phase of concrescence, are not limited to a specific set of objects, but rather comprehend the entire actual world, grasped from a different perspective by each actual entity. Cf. Whitehead's description in *Modes of Thought*, "The data for any one pulsation of actuality consist of the full content of the antecedent universe as it exists in relevance to that pulsation. They are this universe conceived in its multiplicity of details. These multiplicities are antecedent pulsations, and also there are the variety of forms harboured in the nature of things, either as realized form or as potentialities for realization. Thus the data consist in what has been, what might have been, and what may be. And in these phrases the verb to be means some mode of relevance to historic actualities" (MT: 89).

[36] 'Decision' is indeed another determining factor of actual entities. As Whitehead emphasizes in *Adventures of Ideas*, "Spontaneity, originality of decision, belongs to the essence of each actual occasion. It is the supreme expression of individuality: its conformal subjective form is the freedom of enjoyment derived from the enjoyment of freedom" (AI: 258).

speculative scheme, but we have not yet undertaken its analysis. Instead, we provided the general framework of Whitehead's cosmology, and in so doing we paved the way for understanding Whitehead's concept of creativity. At this point, we will turn to the concept of creativity, analyzing it from three different perspectives. First, I will consider creativity as ultimate for Whitehead's cosmology. Second, I will describe the way it is exemplified by Whitehead's description of the actual universe. In addition, I will provide a synthetic account of Whitehead's concept of creativity. From all those perspectives, our analysis will reveal Whitehead's cosmological "multi-level" concept of novelty (Greene 1968: 134).

3.1. Creativity as the Ultimate of Whitehead's Cosmology

We have already mentioned (§ 1.4) that, according to Whitehead (and in contrast to Peirce's standpoint), every philosophical theory necessarily implies an ultimate. For instance, Whitehead affirms that in the cases of monistic philosophies, such as that of Spinoza, God is ultimate. In the case of absolute idealism, the ultimate is represented by 'The Absolute'. More specifically, with 'ultimate' Whitehead refers to a unique element, on the basis of which every philosophy must be built; an element that is never actual *per se*, but that is testified and exemplified by every entity or part of the philosophy in question. He affirms that in his philosophy the ultimate is 'creativity'. Accordingly, if we attribute to creativity the characteristics of Whitehead's concept of ultimate, we will say that, in Whitehead's cosmology, creativity is the element "which is actual in virtue of its accidents. It is only then capable of characterization through its accidental embodiments, and apart from these accidents is devoid of actuality" (PR: 7). Thus, we should consider creativity to be exemplified by every element of Whitehead's universe, and thereby to be constituting a pervasive and essential character of it.

According to Whitehead, creativity is "the principle of novelty" (PR: 21). He writes,

> Creativity is the principle of novelty. An actual occasion is a novel entity diverse from any entity in the 'many' which it unifies. Thus 'creativity' introduces novelty into the content of the many, which are the universe disjunctively. The 'creative advance' is the application of this ultimate principle of creativity to each novel situation which it originates (PR: 21).

From a methodological point of view, for Whitehead[37] creativity is strictly associated with novelty, and conversely, novelty is not conceivable apart from creativity. Creativity brings forth novelty, and novelty represents a manifestation of creativity itself. Therefore, we can also say that, according to Whitehead, a cosmological novelty is "a novel entity," diverse from any other entities it 'synthetizes'.

From this it is clear that the problem of novelty in Whitehead is connected to the explication of creativity. Since creativity is the ultimate, how are we to explain it? Whitehead writes that "creativity is the ultimate behind all forms, inexplicable by forms, and conditioned by its creatures" (PR: 20). Therefore, in order to understand it, we must illustrate those elements of the universe which make it manifest. We must describe those "accidental embodiments" of creativity through which alone it is actualized. In other words, if we want to clarify the meaning of creativity and novelty, we should draw attention to the application of this ultimate principle. This means that we can understand the extent to which creativity is present and operates in the world by analyzing any element of Whitehead's cosmology, because somehow they are all embodiments of creativity. However, the most adequate elements to helping us understand Whitehead's conception of creativity (and accordingly of novelty), are those most expressive of the universe's advance into novelty. They are the process of transition, the process of concrescence, and the actual entities themselves.

To put it another way, by virtue of creativity Whitehead states that the universe is "a creative advance into novelty," and that "the alternative to this doctrine is a static morphological universe" (PR: 222). But how can we describe this kind of 'creative advance?' According to Whitehead's method of speculation, especially for his ontological principle (cf. PR: 18-19, 40, 43, 166, 240), we cannot answer this question by appealing to some kind of postulates. This includes the case of postulating creativity as the principle of novelty. Rather, we can sustain creativity as the principle of novelty if and only if the analysis of our experience shows some prominent kinds of creative advance.[38]

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[37] As opposed to Peirce (cf. Part II, Ch. 2, § 4.2), who proposes a different kind of relationship.

[38] This theory of creativity is presented by Whitehead as an alternative to the theory of an external creator. Cf. AI: 236: "There are two current doctrines as to this process. One is that of the external Creator, eliciting this final togetherness out of nothing. The other doctrine is that it is a metaphysicaal principle belonging to the nature of things, that there is nothing in the Universe other than instances of

3.2. The Epitomes of Creativity: Transition, Concrescence and Actual Entities

We cannot investigate creativity 'directly', but we can grasp it through its experiential manifestations. Thus, I will try to clarify Whitehead's conception of creativity and novelty, by exploring creative advance at the microcosmic level of the universe. At this level of inquiry we find (1) actual entities, we will then analyze (2) concrescence and (3) transition.

(1) With regard to actual entities, and apart from the process of concrescence (namely, the appearance of a *new* actual entity), we can speak of novelty and creativity in two senses. On the whole, every actual entity is creative, and therefore new, insofar as it is a "self-creating creature" (PR: 85). From another perspective, an actual entity is *causa sui.* It is "its own reason for the decision in respect to the qualitative clothing of feelings. It is finally responsible for the decision by which any lure for feeling is admitted to efficiency. The freedom inherent in the universe is constituted by this element of self-causation" (PR: 88). Accordingly, an actual entity is (self)creative because it does not depend on anything else. It is self-creative because its decisions and prehensions are taken only by itself and for itself, for its final satisfaction, which is not given in advance. If we want to pinpoint the specific creative side of an actual entity, we will find it in the subjective form. Consider the following description. Whitehead writes:

> Also the universe is always new, since the immediate actual entity is the superject of feelings which are essentially novelties. The essential novelty of a feeling attaches to its subjective form. The initial data, and even the nexus which is the objective datum, may have served other feelings with other subjects. But the subjective form is the immediate novelty; it is how *that* subject is feeling that objective datum. There is no tearing this subjective form from the novelty of this concrescence. It is enveloped in the immediacy of its immediate present (PR: 232).

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this passage and components of these instances. Let this latter dictrine be adopted. Then the word Creativtiy expresses the notino that each event is a process issuing in novelty. Also if guarded in the phrasees Immanent Creativity, or Self-Creativity, it avoids the implication of a transcendent Creator. But the mere word Creativtiy suggests Creator, so that the whole doctrine aquires an air of paradoz, or of pantheism. Still it does convey the origination of novelty."

Whitehead states that the superject is new because it emerges from *new* feelings, and the latter are new only by virtue of the originality of the subjective form, which is absolutely unique. Thus, the "most creative" part of the actual entity, the one which makes new everything that belongs to the actual entity, is the *subjective form*.[39] Consequently, every actual entity *per se* is an advance into novelty. At the level of actual entities, creativity "expresses the notion that each event is a process issuing in novelty" (AI: 237), and novelty is here identifiable with its subjective form, which individualizes the world, embracing it in an unprecedented view.[40] In sum, as Deleuze says sharply, "For Whitehead the individual is creativity, the formation of a New. No longer is it the indefinite or the demonstrative mood, but a personal mood" (Deleuze 1993: 88).

(2) If we pass to a more general level of analysis, we will construe creativity, and novelty, in a slightly different way. As we demonstrated in § 2.2, if we analyze actual entities in their constitution – that is with respect to their unities and not their internal components – we will find concrescence, the process of their becoming concrete entities. At this level, concrescence make us understand creativity as that "factor of activities which is the reason for the origin of [each] occasion of experience" (AI: 179). Concrescence as the epitome of creativity is indeed so important for Whitehead that he says:

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[39] In addition, we should mention the fifth categoreal obligation: namely, the category of conceptual reversion. Whitehead defines it as the category "by which novelty enters into the world" (PR: 249). To some extent, this category summarizes and clarifies the dynamics of speculative reason addressed in the previous chapter. Conceptual reversion concerns conceptual feeling. It is described as "the process by which the subsequent enrichment of subjective forms, both in qualitative pattern, and in intensity through contrast, is made possible by the positive conceptual prehension of relevant alternatives" (PR: 249). However, according to my interpretation, here lies an ambiguity. If we place too much emphasis on this conceptual prehension of alternatives, we will be forced to maintain that novelty relies on eternal objects. In other words, we would have to claim that, in Whitehead's cosmology, novelty is the pure potentiality of eternal objects. To repute that novelty is pure potentiality would be to refute Whitehead's ontological principle, according to which there is nothing apart from the experiences of subjects. Consequently, it is more reasonable to propose that Whitehead does not consider novelty to be pure potential *per se*. If we want to understand novelty, we will instead find it in the way subjectivity, or actual entity, *actualizes* possibility, *realizes* something new.

[40] It is worthwhile to note that subjective form does not only makes a feeling new, but also a conceptual feeling, and even a proposition. A conceptual proposition has a nature quite different from an individual feeling. It has its origins in a conceptual feeling, but it has the character of individual *per se*. Whitehead states, "A novelty has emerged into creation. The novelty may promote or destroy order; it may be good or bad. But it is new, a new type of individual, and not merely a new intensity of individual feeling. That member of the locus has introduced a new form into the actual world; or, at least, an old form in a new function" (PR: 187).

> Creativity achieves its supreme task of transforming disjoined multiplicity, with its diversities in opposition, into concrescent unity, with its diversities in contrast (PR: 348).

Thus concrescence is an advance into novelty because it describes the process of becoming one from the many. Moreover, it expresses creativity to the extent to which we understand the latter in accordance with its Latin etymology of '*creare*'. Concrescence brings about a new actual entity. Accordingly, at this level, creativity consists in the process of moving from the "disjoined multiplicity" to the concrete unity, and novelty is the new actual entity itself. Furthermore, if we compare this level with the precedent of actual entities, we will notice a similarity between the roles of subjective form and of concrescence. They represent the same thing, but at two different levels: microcosmic and macrocosmic. Even in this case, Deleuze offers a synthetic description of this process of creativity. He states:

> For with Leibniz the question surges forth in philosophy that will continue to haunt Whitehead and Bergson: not how to attain eternity, but in what conditions does the objective world allow for a subjective production of novelty, that is, of creation? The best of all worlds had no other meaning […]. The best of all worlds is not the one that reproduces the eternal, but the one in which new creations are produced, the one endowed with a capacity for innovation or creativity: a teleological conversion of philosophy (Deleuze 1993: 89).[41]

(3) Transition discloses a different conception of creativity because it emphasizes the radical character of 'ongoing-ness'. As Cloots emphasizes, "it has to do first of all not with freedom or spontaneity, but with 'the passage of nature' or 'the creative advance'" (Cloots 2001: 38).[42] In other words, transition does not focus so much on 'creation', but

[41] To understand the relationship of novelty understood as contingency, see Maaßen 2010.

[42] Cloots explains this further, writing that "it is in that context that the function of creativity is fundamentally situated by Whitehead, both historically and metaphysically. Historically, in the sense that in the earlier works, creativity is immediately linked to the 'becomingness of nature – its passage or creative advance' (PNK: 61), while freedom and novelty only become a real issue from the writing of *Science and the Modern World* and following. Even in his later metaphysics, the first function of creativity has to do with the creative advance. Novelty, freedom, spontaneity are secondary vis-à-vis ongoingness: there has to be novel concrescence in order for there to be freedom, spontaneity or novelty. What has to be explained is becoming, which for Whitehead means: 'the creative advance of nature' (as

rather on the fact that everything passes. It refers to the fact that the universe has no halt. Thus, transition reveals creativity as a 'principle of unrest', and novelty as *becoming*, the becoming of actual entities (and therefore of time). For instance, Whitehead refers to transition when he defines creativity as the principle "whereby the actual world has its character of temporal passage to novelty" (RM: 77).

From another perspective, if concrescence is the teleological process which leads to a new unity, on the contrary, transition recalls the fact that "the creative advance into novelty is never completely realized" (PR: 134-35). Whitehead writes, "There is an urge in things which carries the world far beyond its ancient conditions" (SP: 211). Transition is the expression of this urge. It is a process which expresses the continuous happening of *passage.* Therefore, creativity must be understood, to some extent, as inexorable passage.

Further evidence of this transition, and so of creativity understood in terms of transition, can be found in the well known passage where Whitehead maintains the originality of actual entities on the extensive continuum. In particular, his description of the supremacy of becoming reveals the essential role of the process of transition. A crucial passage from *Process and Reality* reads, "there is a becoming of continuity, but no continuity of becoming" (PR: 35). Continuity becomes, but we cannot describe this becoming in terms of continuity itself. Indeed, this becoming is an irreducible process or passage. In a more detailed way, Whitehead explains that "the actual occasions are the creatures which become, and they constitute a continuously extensive world. In other words, extensiveness becomes, but 'becoming' is not itself extensive" (PR: 35). To sum up, from the perspective of transition, creativity is the inexorable ongoing-ness of the universe, and novelty is accordingly the passage that creativity requires at all times.

3.3. Whitehead's Novelty: The Advance of the Universe Explained

In § 3.1 we showed that, for Whitehead, cosmological novelty cannot be separated from process, because it is by definition connected to creativity. For Whitehead, creativity is ultimate, and is also the principle of novelty. The analysis of the epitomes

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he puts it in the earlier works), or 'the creative advance into novelty' (as he puts it later on)" (Cloots 2001, 38).

of creativity in § 3.2 – namely, actual entities, concrescence, and transition – permits us to characterize this ultimate of creativity, which *per se* is never actual, and to connote Whitehead's cosmological account of novelty. This analysis has revealed three different meanings of novelty:

a) At the level of actual entity, creativity is the process originating from the subjective mode, and novelty can be regarded as a "new perspective;"

b) At the level of concrescence, creativity describes a process of creation, and novelty is "a new actual entity;"

c) At the level of transition, creativity designates the inexorable passage of things, while novelty is to be regarded as "difference," that difference which constitutes the passage, and can be further analyzed as the "un-extensive becoming."

As we have already pointed out, there are relevant differences among these conceptions, in particular between the last conception of creativity, emerging from the analysis of transition, and the two former ones. Does this difference constitute an irreducible hesitancy of Whitehead's thought?

Leaving this possibility open, I will first attempt a synthesis of those different expressions, or embodiments, of creativity and novelty. Only when we have connected these perspectives will we be able to examine Whitehead's real standpoint, and have the possibility of adequately criticizing it. I maintain that this approach is necessary if we are to deal with Whitehead's unique, general hypothesis, rather than to take a stand merely on one of his different concepts of creativity and novelty, or to reduce one to another.[43] Accordingly, I will try now to offer a synthetic interpretative hypothesis for what Whitehead calls "the only possible doctrine of a universe always driving on to novelty" (SP: 127).

At the core of my hypothesis lies a deeper understanding of the concept of transition. So far, we have indicated that transition manifests creativity as an inexorable passage.

[43] The fact that Whitehead speaks of an "ultimate" implicated in every thought has led me to this interpretative hypothesis. Indeed, in accordance with the idea that every philosophy has an ultimate, and without abolishing the hesitancies or obscure passages of Whitehead's philosophy, we can at least try to comprehend these different meanings together. The alternative would be to consider one aspect to be more original than the others. For instance, the creativity of transition as more fundamental than concrescence, or vice-versa. Under a synthetic interpretation, however, we are not obliged to choose the 'transitory' meaning of creativity and leave the 'concrescent' meaning, or vice-versa.

However, Whitehead's description of transition is more complex (cf. § 2.1.1). In particular, as the previous section shows, Whitehead's 'objectification' of past actual entities can lead to the fixity of the past, and thus can make harder to conceive of novelty. We must now clarify this point by connecting it to transition as a passage. "Process and Reality," an essay published in *Science and Philosophy*, can help us understand the point here at stake. Whitehead argues:

> Again the attainment of that last perfection of any finite realization depends on freshness. Freshness provides the supreme intimacy of contrast, the new with the old. A type of order arises, develops its variety of possibilities, culminates, and passes into the decay of repetition without freshness. That type of order decays; not into disorder, but by passing into a new type of order (SP: 126).

Here, Whitehead puts together both concrescence and transition. He indeed emphasizes freshness and the passage of one type of order into another. The last lines of the quotation clearly exhibit what was missing in our last account of creativity as transition. According to Whitehead, creativity does not merely imply a passage. Whitehead's philosophical proposal is more precise. He specifies, "The type of order [that we can even interpret as actual entity] decays; *not into disorder, but by passing into a new type of order*" (emphasis added). In other words, things always pass – or there is always an urge to go beyond – but this passage is a passage *into another kind of order*. From this description, it is clear that transition begets order. Thus we can *either* construe transition as necessarily including the rise of another kind of order, *or* conceive of transition together with concrescence, because concrescence stands exactly for the rise of the new kind of thing (that the new actual entity is), or of a new kind of order.

In this way, we can understand Whitehead's conceptions of creativity not as different, alternative concepts, but as a unique philosophical proposal. We can say both that 'creative advance' consists of the intertwining of concrescence and transition, and – to use Whitehead's synthetic expression – that creativity is "the passing into a new kind of order." Thus, if creativity is the principle of novelty, we will interpret Whitehead's cosmological novelty as this *passing into a new kind of order*.

This implies that, for Whitehead, the maximum of novelty lies not at all in potentiality, but rather in this process of actuality. As he stresses in *Adventures of Ideas*, by adopting the notion of *Eros*:

> The process is itself the actuality, and requires no antecedent static cabinet. Also the processes of the past, in their perishing, are themselves energizing as the complex origin of each novel occasion. The past is the reality at the base of each new actuality. The process is its absorption into a new unity with ideals and with anticipation, by the operation of the creative Eros (AI: 276).

In this description we can notice how, for Whitehead, transition cannot be abstracted from concrescence, and vice-versa. In this sense, creativity comprises both sides. 'Creative Eros' best expresses this peculiar intertwinement.[44] Indeed, Eros is described by Whitehead as "the urge toward the realization of ideal perfection," and so Whitehead emphasizes through this distinction that side of "poros" (meaning "plenty" in Greek), which is characteristic of *eros*.[45] Eros *per se* describes the transitional character of creativity, the "urge" to go beyond. However, at the same time *eros* is connoted by the adjective "creative," which instead recalls the active, positive movement of self-causation manifest in concrescence. In other words, the operation of *eros* is not only determined by a radical lack of completeness, but it consists as well in a positive, propulsive force of creation. Accordingly, if this is creativity, novelty is to be understood as a "real potentiality," another paradoxical expression Whitehead adopts to describe the two sides of novelty stated above.[46]

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[44] Our interpretation of creative *eros* diverges from Hausman's (Hausman 1974).

[45] Cf. Plato's *Symposium*, to which Whitehead refers to in *Adventures of Ideas*.

[46] Whitehead states in *Adventures of Ideas*, "The exact contrary is the case. The initial situation includes a factor of activity, which is the reason for the origin of that occasion of experience. This factor of activity is what I have called 'Creativity'. The initial situation with its creativity can be termed the initial phase of the new occasion. It can equally well be termed the "actual world" relative to that occasion. It has a certain unity of its own, expressive of its capacity of providing the objects requisite for a new occasion, and also expressive of its conjoint activity whereby it is essentially the primary phase of a new occasion. It can thus be termed a "real potentiality." The "potentiality" refers to the passive capacity, the term "real" refers to the creative activity, where the Platonic definition of "real" in the Sophist is referred to. This basic situation, this actual world, this primary phase, this real potentiality – however you characterize it – as a whole is active with its inherent creativity, but in its details it provides the passive objects which derive their activity from the creativity of the whole. The creativity is the actualization of potentiality, and the process of actualization is an occasion of experiencing. Thus viewed in abstraction objects are passive, but viewed in conjunction they carry the creativity which drives the world. The process of creation is the form of unity of the Universe" (AI: 179).

Given this explanation of the concept of novelty, any further justification of it must be found in experience itself, as we said at the beginning of this chapter. As Whitehead puts it on the last page of *Dialogues*, "this creation is a continuing process, and 'the process is itself the actuality,' since no sooner do you arrive than you start on a fresh journey" (D: 366).

CONCLUSION

As indicated in Part I, the goal of this work is to demonstrate Peirceand Whitehead's contribution to the problem of novelty. The conclusion will therefore include comparison and synthesis of the views of novelty put forth by Whitehead and Peirce. For a general introduction to the problem of novelty, I refer the reader to Part I. Similarly, Part I also includes the historical and theoretical perspectives that form the foundation of my comparison of Peirce and Whitehead. In the current section, I will address the specific issues that emerged in Part II and Part III regarding Peirce and Whitehead's philosophies.[1]

The first part of this conclusive chapter will offer an overview of the results obtained in our previous analysis. Before drawing any general conclusions, it is essential to briefly report and single out the specific results of each chapter. Thus, this first part of this conclusion is purely analytical, and, for reasons of space, I will omit a detailed discussion or comparison of my general interpretation of Peirce's and Whitehead's 'phenomenology', 'gnoseology', and 'cosmology'. Indeed, my general accounts of Peirce's and Whitehead's theories will be included in the present chapter only to the extent that the authors' views of novelty are grounded in them. To put it another way, their 'phenomenology', 'gnoseology', and 'cosmology' will be included in the second part, only insofar as they make novelty possible.

The second part of the chapter will exhibit Peirce's and Whitehead's general conceptions of novelty. Namely, it will focus on the fact that their thought allows for novelty, and will explore the conditions that permit this preeminence of novelty.

Finally, the third part will illustrate the original contribution that Peirce and Whitehead gave to the problem of novelty. I refer to '*the* original contribution', and not to 'original contributions' in order to emphasize their affinity, and the way in which their accounts are complementary, and in fact complete each other. In this way, I will

[1] Some elements described in Part I will certainly recur in this chapter, but, for the purposes of clarity, I will not return to them in a detailed way. Part I represents the foundation for what follows. Therefore, it needs not to be synthetically set forth and discussed here.

clarify the account of novelty that, according to my interpretation, they both inaugurate, without reducing their differences or overlooking their distinctive features.

1. The Centrality of Novelty in Peirce and Whitehead

In order to demonstrate the centrality of novelty in both Peirce's and Whitehead's philosophies, it is necessary to begin by briefly recounting the results of the analyses of Part II and Part III. Given that, in the next section I will compare Peirce's and Whitehead's thoughts. For the present I will summarize the analyses made, in the order in which I developed them. I will start from Peirce's view, and then move on to Whitehead.

1.1. Outline of Peirce's Account of Novelty

(i) With regard to Peirce's *phenomenology,* we established that every phenomenon must be understood to be new. This does not mean that novelty is the *most prominent* characteristic of every phenomenon, but rather that it represents an essential feature of phenomena. Similarly, Firstness and Secondness may be not prevalent, but in any case are constitutive of phenomena (cf. Part II, Ch. 1, § 3).[2] Indeed, this conclusion is based on the analysis of § 2, where I demonstrated that, in Peirce's phenomenology, novelty is associated with Firstness and Secondness (cf. §§ 2.1, 2.2). Insofar as Firstness and Secondness express novelty, novelty is traceable in every phenomenon alike. Also, because novelty is connected to Firstness on the one hand, and to Secondness on the other hand, I pointed out that there are two meanings of phenomenological novelty. The first meaning is related to Firstness, and is "absolute originality and spontaneity" (§ 2.1). The second meaning, related to Secondness, is that of "uniqueness and individuality conceived of as irreducible difference" (§ 2.2). Thus, on the whole, every phenomenon is new because it is original and free, as well as individual and irreducible. Furthermore, Peirce's emphasis on the element of Thirdness clarifies that, from his point of view, the novelty of phenomena, understood as originality and irreducible

[2] For references contained in (i) belonging to Part II, Ch. 1, I will refer for the sake of clarity only to the section number. I will do the same for the rest of the chapters. Namely, I will report the chapter in question only the first time, in the parenthetical reference, and then I will take for granted that the other references contained in (ii), or (iii), etc. pertain to that chapter.

difference, does not deny their continuity, but instead opens the way for posing the question of novelty at the gnoseological level.

(ii) At the gnoseological level, the centrality of novelty emerged from Peirce's various attempts to formulate a logic of discovery. In particular, the pivotal role of abduction helps us understand Peirce's predominant interest in the relationship between logic and novelty. In light of this relationship, novelty must be understood as 'new idea'. For this reason, I analyzed abduction in its dual role of being explanatory and creative. Abduction was found to be the only (synthetic) method of reasoning (logical but non-deductive) that leads to new ideas, or, better yet to new hypotheses (cf. Part II, ch. 2, §§ 3, 4). In addition, I considered the creative side of abduction and investigated the source of abduction itself by examining how abduction comes to new ideas through 'rational instinct' and 'musement' (conceived of as pure play) (§ 4.2.1).

In this way, the chapter explores the origin of new ideas, or – better yet – it explores the *creative* process of thought, according to the distinction made in § 4.2.[3] At the same time, however, this chapter is committed to clarifying the meaning of novelty at the gnoseological level. In regard to the first point, we came to the conclusion that the appearance of a new hypothesis is founded on an "esthetical and ethical reading of minimal signs" (§ 6). In regard to the second point, in addition to identifying gnoseological novelty as an increase of knowledge, we showed that, according to Peirce, at a gnoseological level, novelty can never *be*, and furthermore can never *be communicated*, apart from an horizon of meaning already present.

(iii) In cosmology, Peirce generally associates novelty with chance. Taking for granted Peirce's general emphasis on the universe as developing, as well as his account of chance as a constitutive element of the universe, we saw that, for him, chance accounts for growth, variety, feeling, and the appearance of law itself (cf. Part II, Ch. 3 § 3). But there are different perspectives in Peirce cosmology. In regard to Peirce's *cosmogony* (cf. §§ 1.1, 2.1, 2.2), novelty is associated with the earliest phase of the universe. Here it corresponds to "mere no-thingness," "chaos," or "vague potentiality." In other words, novelty was present in the maximum degree at the beginning of the universe, while now is continuously decreasing. However, when we considered Peirce's

[3] I refer to the difference between creativity and novelty.

categories as "important metaphysico-cosmical elements" (§ 3.2), we found that Peirce proposes a different description of the universe. In this account, novelty – still conceived of as chance, spontaneity, and originality – corresponds to the category of Firstness. Insofar as Firstness is a permanent characteristic of the universe, novelty is not going to decrease with the evolution of the universe.

These alternative views of novelty brought to the surface a problem underlying Peirce's view in general. This problem lies in the relationship between Thirdness and Firstness, synechism and tychism, law and indeterminacy, continuity and novelty. But, according to my interpretation, there is a third view of novelty, which offers a response to this problematic understanding of Thirdness and Firstness, continuity and discontinuity, or at least proposes a valid hypothesis for its comprehension. This view of novelty is grounded in *Evolutionary Love*, where Peirce founds his evolutionary theory of the universe on the basis Thirdness. In this essay, we are told that novelty is not only chance, i.e., Firstness, but also *agape*, i.e., Thirdness – love. The projecting and creative essence of love accounts for the continuous springing forth of novelty which chance cannot account for, because it happens within the continuity of evolution.

1.2. Outline of Whitehead's Account of Novelty

(i) On the whole, Whitehead's phenomenology, as presented in *The Concept of Nature*, discloses novelty as the ubiquitous and most concrete element of experience. Indeed, I have argued that 'event' is to be construed in terms of novelty. 'Event' is the term Whitehead adopts as more adequate to interpreting experience than the Aristotelian notion of 'substance' (Part III, Ch. 1, § 2.1). According to Whitehead, an event is a minimal unity of experience, and it can be regarded as novelty insofar as every unity of experience is, for him, unique. By virtue of its intrinsic structure it cannot be foreseen on the basis of previous events, and, by virtue of its external structure (of relations), it can never happen again. Thus, to the extent that novelty corresponds to event, Whitehead's phenomenology depicts novelty as a passage, or a transition. For Whitehead, we experience novelty as *becoming*, and this experience of becoming has two relevant implications. On the one hand, 'becoming' is the most concrete element of experience, and so everything that appears to us as permanent, including every object we can recognize, is nothing but an element abstracted from this basic fact of becoming.

To this extent, novelty is seen as the most essential feature of experience. On the other hand, novelty as becoming does not just apply to some phenomena, or to a determined class of them. Rather, inasmuch as it is the most fundamental character of experience, every fact of experience has this character of becoming, or event, or happening. To this extent, novelty is ubiquitous. We continuously experience novelty, because every experience is an experience of becoming.

(ii) Although at the phenomenological level it seems that novelty can be experienced but not known, Whitehead's gnoseology explicitly pivots around the concept of novelty. He never develops a strictly logical theory in this regard, such as Peirce's account of abduction, but the fundamental role of novelty appears both in his theory of philosophical knowledge, and in connection to his analysis of the function of reason. Concerning the theory of knowledge, Whitehead depicts knowledge as a continuous process of penetration. Ideas and thought are limited but they need to be overtaken. Reason continuously overtakes them by introducing new ideas. From another perspective, Whitehead defines reason as the urge to go beyond, and, accordingly, we can say that, for him, the possibilities of reason are infinite, while its actualization is always finite.

Our increase of knowledge happens by means of new ideas because of reason's entertainment of alternatives. Whitehead asserts that it is through this entertainment of alternatives that reason conceptually actualizes "unexpressed possibilities." At the same time, however, he does not explain what it means to conceptually actualize unexpressed possibilities, and neither does he elaborate this point with respect to the function of reason. With respect to the function of reason, he explains that it constists in the emphasis upon novelty, whether novelty is a new datum experience, or a new appetition of reason, or yet an unexpressed possibility. In this way, the only explanation given by Whitehead for the introduction of new ideas, and so for the cognitive power of reason, lies in the fact that reason itself is a factor of the process of the universe.

(iii) At the cosmological level, novelty is described as the most essential characteristic of the universe, insofar as Whitehead's cosmological scheme is based upon the ultimate of 'creativity', which is defined by him as the 'principle of novelty'. On the whole, the progressive advance of the universe testifies to creativity. However, given that creativity as such is never actual, it must be analyzed through its epitomes:

actual entities, concrescence, and transition. In order to give an account of Whitehead's cosmological view of novelty, it is therefore necessary to consider these epitomes of creativity.

At the microcosmic level, that of actual entity, creativity is viewed as the process originating from the subjective mode of the actual entity, and novelty is to be understood as a "new perspective" (cf. § 3.3). Between the microcosmic level and the macrocosmic one, concrescence describes creativity as the process of creation, and novelty consists of "an actual entity." Finally, at the macrocosmic level of transition, creativity refers to the inexorable passage of things, and novelty is that difference which constitutes this passage. In light of this variety of manifestations of creativity, and through a further comprehension of transition, I suggested that it is possible to offer a unique, synthetic view of Whitehead's concept of creativity as *the passage into another kind of order*. Based on this interpretation, Whitehead's cosmological novelty is viewed as both this 'passage', and this 'new kind of order'. By 'passage', novelty indicates the *mode* of creativity, and when novelty is a 'new kind of order,' it stands for the *result* of creativity. In both cases, Whitehead considers the maximum of creativity and novelty to lie in actuality, rather than potentiality.

2. Peirce's and Whitehead's Contribution to the Problem of Novelty

The above overview represents *per se* evidence of the startling prominence of the topic of novelty in both Peirce and Whitehead. Although novelty is important for both philosophers, however, there are notable differences in their accounts. Some of these are differences of methodology, others of content. In any case, on the whole the outcome of the analysis carried out thus far fully allows for comparison between Peirce and Whitehead's view of novelty.

It should be noted here that comparative studies in philosophy are not all alike. Comparative studies may have different goals; they can be motivated by a historical purpose; they can detect similarities or differences between authors, giving preference to either the similarities or the differences, depending on the purposes of the investigation. In addition, one may illuminate the philosophy of one author by comparing her with another, and vice-versa.

In my case, my aim is not to point out similarities and differences. These will, of course, emerge from these conclusive sections, but in themselves they do not represent the philosophical comparison I am making.[4] Instead, my goal is to compare Peirce and Whitehead in order to give an account of the new perspective they inaugurate in regard to novelty, and to properly define their new contribution to the problem of novelty, as that problem was delineated in Part I, Ch. 1. In other words, their comparison will consist in explicating, interpreting, and further developing their standpoint on novelty. To put it another way, this comparison is meant to reveal how their philosophies make it possible to take new steps towards an understanding of the problem of novelty. On the whole, the perspective I assume for my comparison is well summarized by the telling remark of Vincent Colapietro, who says:

> It would not be enough to show how two sticks are alike in this, that, and the other respect; it would be necessary to rub them together in such a way as to generate an illuminating flame and, then, ideally to use that flame to light the path of inquiry (Colapietro 2011, 52).

Accordingly, I will compare Peirce and Whitehead insofar as the mutual illumination given by their comparison will enlighten the path of inquiry into novelty.

2.1. How Do Peirce and Whitehead Allow for Novelty?

In order to thus illuminate the problem of novelty, it is first necessary to emphasize what allows them to address the problem of novelty, and to place it at the center of their philosophies.

The first point to make is that, as mentioned above, both Peirce and Whitehead include novelty in their philosophical accounts. This obvious remark is not to be overlooked. As Part I, Ch. 1 has demonstrated, novelty has been confined to the margins of philosophy for a long time,[5] and has only recently been valued as a genuine

[4] With this regard, cf. also Part I, Ch. 2 and 3. It is important to note that, in clarifying the purpose of my comparison, I do not intend to overlook all the detailed conclusions already reached. Rather, I think it is necessary to explain their philosophical significance, in order to avoid reducing them to intersections of merely contingent aspects of Peirce and Whitehead's thought.

[5] In Part I, Ch. 1, § 2, I also stated that novelty is at the margins of philosophy according to a different meaning. Novelty is essentially at the margins of philosophy because of its paradoxical structure and its irreducibility. Roughly, we can say that when you fully understand novelty, novelty vanishes away.

philosophical problem. If novelty has usually been banished from philosophical discourse, what allows Peirce and Whitehead to take it into consideration? A thorough answer to this question cannot be found simply in the historical details. In addition, it does not involve a precise characterization of novelty, but rather regards the very possibility of inquiry into novelty. Thus it is a question based on the general features of their thought, as well as their methodological assumptions.

First of all, the possibility of taking novelty into account depends on the centrality attributed to experience, and on the way experience is interpreted by the authors. Both Peirce and Whitehead investigate experience as a fruitful field of philosophical inquiry. For both of them, experience is worthy of being an object of philosophical investigation; – it needs not to be dismissed as merely contingent. In addition, they both maintain that experience discloses a structure that can be known and rationalized by us, as Peirce's phenomenological categories and Whitehead's thought from *The Concept of Nature* to *Adventures of Ideas* prove. The centrality of experience implies a renewed attention to the method of observation, which both philosophers indicate is the proper method of phenomenology, and therefore also the initial phase of any philosophical inquiry in general (cf. Part II, Ch. 1, § 1.1 and Part III, Ch. 1, § 1.2 and Ch. 3, § 1.2.2). By virtue of observation, experience receives a non-conventional interpretation: for both authors, the nature of experience is indeed a relational one (cf. also Part I, Ch. 2, § 2.4). But it is not merely that. Peirce describes every experience as the intertwinement of his three irreducible categories, and Whitehead depicts it as the peculiar dialectic of objects and event, where events are the most concrete and original elements of experience. To this extent, both Peirce and Whitehead admit novelty – conceived of as both originality and difference – as an essential feature of experience: the former through the ubiquitous and irreducible presence of Firstness and Secondness, and the latter through the notion of event.[6]

Their inclusion of novelty is not limited to the level of experience, however. Novelty is also taken into account at the gnoseological level. The analyses of Peirce's abduction and Whitehead's "adventures of ideas" (his view of the function of reason) have revealed how much the authors connect novelty to reason. The very possibility of

[6] Reese also makes a point similar to the one here expressed when he insists that Peirce and Whitehead fully admit and consider the reality of potentiality. Cf. also Reese 1952.

posing the problem of novelty at the gnoseological level is grounded in Peirce and Whitehead's broad conceptions of experience. Although I have stressed the characteristics of Firstness, Secondness, or Event, the totality of experience is not exhausted by those elements. It also includes Thirdness, with regards to Peirce, and the subject-superject, with regards to Whitehead. This means that, already at the phenomenological level, novelty is not confined to mere sensation or perception, in opposition to interpretation. On the contrary, insofar as Firstness and Secondness are connected to Thirdness, and insofar as subject-superject is a factor of experience, novelty is not alien or unrelated to the interpretative side of experience. Instead, it can be grasped by us, and it is therefore not merely experienceable, in the sense of being ineffable. For this reason, novelty can also enter as an important factor in Peirce's and Whitehead's theories of knowledge. This is documented on the one side by Peirce's abduction, which requires a surprising fact to happen, and on the other side by Whitehead's function of reason as emphasis *upon* novelty (or experiential difference, or passage). To this extent, we see that Peirce and Whitehead promote a concept of rationality far beyond that of classic rationalism: a rationality which does not reduce experience to its rational schemes, or account for experience insofar as it fits into the limits of reason, but instead a rationality which starts from experience.[7] In this way, they advocate for a rationality that is open to novelty, admits its very possibility, and so is capable of continuously advancing in knowledge.

If we consider the way in which these two philosophers account for the rise of new ideas, we see that their account of reason and knowledge diverges from rationalism for another reason. Both Peirce and Whitehead emphasize the presence of an aesthetic and imaginative factor, essentially related to novelty, apart from which knowledge cannot increase. Peirce's musement is described as *reverie*, pure play (cf. Part II, Ch. 2, § 4.2.1). Whitehead's speculative reason conceptually realizes unexpressed possibility by virtue of reason's *entertainment* of alternatives (cf. Part III, Ch. 2, § 4.2). The significance of this aesthetic and imaginative factor is not that the philosophers support a form of anti-rationalism, however. Peirce and Whitehead do not describe reason as opposite to (aesthetic) sentiment and imagination, and, at the same time, they do not

[7] In this regard, it is worthwhile to mention that both Whitehead and Peirce embrace realistic perspectives (cf. Part I, Ch. 2, § 2.4).

reduce reason to a matter of sentiment. In this case, Peirce in particular tries to explain the role of aesthetics in knowledge, and its intrinsic rationality.

Turning now to their cosmologies, we find that both Peirce and Whitehead describe a complex universe, unique but pluralistic, where every component is essentially interrelated. We see here a kind of reflection of the results exhibited in regard to phenomenology. For both philosophers, cosmology does not merely represent an inquiry into the physical universe, but embraces every element we can find in the universe we live in. For this reason, both thinkers elaborate an evolutionary cosmology, which does not merely account for change and variation (understood as simple variation of the old), but includes novelty. Peirce's tychism and agapism, and Whitehead's cosmological ultimate, i.e., creativity have this in common: both their "systems" describe a universe that is organic and continuous (insofar as elements are connected among them), but continuously open and redefined by novelty.

Given these essential connections between Peirce and Whitehead's general thoughts and accounts of novelty, I will now turn to their contribution to the problem of novelty *per se*. My interpretation does not aim at "solving" the problem of novelty, but rather at disclosing the feasible path Peirce and Whitehead traced, and starting to walk on it.

2.2. Peirce's and Whitehead's Concept of Novelty

When compared with other philosophers, we see that Peirce and Whitehead's account is unique in comparison to the others, because their writings allow us to understand novelty in regards to phenomenology, gnoseology, and cosmology.[8] Apart from Bergson, no one in the last two centuries has offered this opportunity, and Bergson does not stand with Peirce and Whitehead because his perspective on the relationship of novelty and reason is quite opposed to theirs. Indeed, in Bergson's account, knowledge and novelty mutually exclude one another.[9] Thus, first and foremost, Peirce's and

[8]Gilles Deleuze can be grouped with these thinkers. Apart from Deleuze's limited commitment to cosmology, he was well aware of Whitehead's philosophical endeavors (as well as Bergson's). We do not consider his philosophical theory with those of Peirce and Whitehead, however, because it is "less original," not in the content he proposes, but in the general perspective he assumes.

[9] It is important to clarify that, according to Bergson, we have access to novelty. From his perspective, intuition is indeed the key for grasping novelty. Thus, we can say that, for Bergson, knowledge and novelty are connected. However, as we already reported in Part III, § 1, and to the extent that we understand knowledge to be a form of expression of understanding (cf. Part III, Ch. 2, § 2.2), Bergson denies the possibility of grasping novelty *per se*, due to the characteristics of mind.

Whitehead's perspective is the only 360-degree perspective. This is the first important suggestion they offer to us in regard to novelty, because to prove the consistency and validity of a theory of novelty, we must analyze it according to all the different fields of philosophical inquiry. To clarify this point, it is sufficient to consider it from another perspective: we can say that the topic of novelty *per se* is so radical that it requires us to differently understand all the possible philosophical levels of investigation and their content. For instance, for the authors, if novelty really obtains evidence at the level of experience, it must also determine a certain view of the universe, and a new comprehension of it. Peirce, indeed, maintains the irreducibility of Firstness at the phenomenological level of inquiry, and includes real chance in his view of the universe. For his part, Whitehead emphasizes event at the level of experience, and centers his cosmology on the principle of creativity.

Consequently, the first point they make in regard to novelty is that it undermines all kinds of determinism, materialism or necessarianism, at all possible levels of philosophical discussion. Once you have admitted novelty, you must abandon every approach of this kind, and you must try to find a new understanding of experience, knowledge, and the universe. For this reason, we can consider novelty as one of the main issues of philosophy. The philosophy one adopt depends upon the response she offers to the problem of novelty. This is easily observed in Peirce and Whitehead's writings. Both philosophers propose two absolutely original theories, which differ greatly from the classic philosophical tradition. Peirce construes every issue on the basis of his triads of Firstness, Secondness, and Thirdness, the mutual interrelation of which permit him to embrace continuity, as well as originality and irreducibility. At the same time, Whitehead interprets everything on the basis of the couple actual-potential. Accordingly, we can see both of them as "process philosophers," insofar as their understanding of the world is founded on the process emerging from the intertwinement of the three categories for Peirce, and from the mutual requirement of actual and potential in Whitehead's thought.[10]

[10] Paradoxically, Whitehead opposes Aristotle's concept of substance/predicate as much as he supports the Aristotelian couple of potentiality/actuality. Cf. in particular *Process and Reality*. In addition, the famous fallacy of misplaced concreteness is based upon this interpretation of actual-potential. The concrete is what is actual, while abstractions are potentialities, where the potentialities intrinsically depend on actuality. In fact, as it is clear from misplaced concreteness, Whitehead diverges from Aristotle in inverting actuality with potentiality. Potentiality does not precede actuality. For

From this discussion, it is possible to single out two main interpretations of novelty. On the one hand, novelty may be understood as irreducible difference (cf. Peirce's 'Secondness,' or Whitehead's 'event'). On the other hand, novelty can be understood as pure originality (cf. Peirce's 'Firstness,' and Whitehead's 'unexpressed possibility'). Although these are the two interpretations that stand out, however neither of them is sufficient to give an adequate description of Peirce and Whitehead's account of novelty, in the way we have explored it so far.

Therefore, to demonstrate the significant addition Peirce and Whitehead brought to the understanding of the problem of novelty, I will here recall a famous debate published in the *Transactions of the Charles S. Peirce Society* in 1996-97, between Sandra Rosenthal and Lewis S. Ford and concerning the nature of time. [11]

On the whole, the general presuppositions of the debate corresponded to the core of the present dissertation. Rosenthal clearly states at the beginning of her essay:

> Whiteheadian and pragmatic process philosophies stand united in their rejections of substance philosophy and their endeavors to return to the full gamut of human experience in its emergence within and openness unto a rich, creatively advancing processive universe (Rosenthal 1996, 542).

However, she maintains, "*the* crucial difference with pragmatism" (Rosenthal 1996, 553) lies in Whitehead's view of time. In a nutshell, for Peirce continuity is primary, while, for Whitehead, atomism is primary. At first glance, one may view this as *the* crucial difference, not only with regard to time, but with regard to the philosophies of Peirce and Whitehead generally considered. Moreover, the problem of novelty seems to lie exactly in this relationship between continuity and atomism, or – better yet – continuity and discontinuity.

If we adopt this interpretative key to the question of novelty, we should ask: is novelty better explained according to a theory of continuity or according to a theory of atomism? As the analysis carried out has already revealed, this question is "misplaced."

Whitehead, the truth is quite the opposite. Cf. in this regard the relationship between actual entities and eternal objects, or yet the relationship of event-objects.

[11] A further notable contribution to this debate has been offered by Van Haeften 2001. Cf. also Part I, Ch. 3, § 1 of the present dissertation.

For instance, as Whitehead states in different places, the problem is not to deny continuity for the sake of discontinuity (or actual entities). To render the universe in its complexity, we need both these notions.[12] Moreover, Peirce's account of the irreducibility of Secondness and Firstness (cf. especially EP2: 143-241) to Thirdness clarifies that his concept of continuity allows for individuality. As a consequence, if we are to understand Peirce and Whitehead's view of novelty by focusing on the relationship between continuity and discontinuity, then our aim should not be to choose one of the two (continuity or discontinuity), but to gain a better understanding of their connection, through which novelty emerges.

In examining the problem of continuity and discontinuity and how this problem pertains to novelty, it is interesting to note that, in regard to novelty, both Peirce and Whitehead seem to be advocating the opposite of their general positions. Consider the two images used for creativity at the cosmological level: Whitehead describes the process of creativity throughout the universe as an expression of *creative eros*, while Peirce describes creativity as an expression of *creative agape* (cf. Part II, Ch. 3, § 3.3 and Part III, Ch. 3, § 3.3). *Eros* and *agape* are two sides, two possibilities of love. Hausman clarifies them as follows:

> Eros is love that is expressed by what seeks something more perfect, or more fulfilling, than what is possessed by the lover in the absence of union with the beloved. Thus, eros is expressed by an agent that is relatively dependent on the beloved for fulfillment. Agape, on the other hand, is love expressed by an agent already fulfilled in its own terms, and it is directed not as a seeking but as a concern for the beloved. […] Agape is commonly said to be illustrated by brotherly love or parental love or love for children (Housman 1974, 15).

Eros (Whtiehead's theory) is a kind of love arising from the lack of something that the one who loves misses and feels originally belongs to her. *Eros* thus implies *per se* continuity, more than discontinuity. Eros is a creative movement caused by the fact that there was an original continuity – now lost – whose achievement must be pursued. Thus, *eros* must imply an original continuity so effective that the movement of every

[12] As Whitehead highlights in *Process and Reality*: "Cosmology must do equal justice to atomism, to continuity, to causation, to memory, to perception, to qualitative and quantitative forms of energy, and to extension" (PR: 239). Cf. also AI: 183.

atom (that is, every actual entity) is determined by it. This is exactly contrary to Whitehead's theory of atomism.

In contrast, *agape* (Peirce's theory) is usually associated with the love God has for creatures, and it is the love proper to a "fulfilled agent." For instance, your love is *agape* when you are so happy and fulfilled that you become very interested and kind to the beggar you pass by every day, or with everybody you meet. In contrast, your love is *eros* when you give attention to a person because she can give you what you miss, what you need to be fulfilled. In this sense, *agape* is to some extent more proper to atomism than to a theory of continuity,[13] because it first presupposes fulfilled individuals, who, in a second moment, create continuity by means of creative love.

What is the significance of this misconstruction? Is it possible that Peirce and Whitehead both, by a remarkable coincidence, choose the "wrong" term for their descriptions of the creative advance of their universe? For the moment, I do not have a satisfactory explanation for this coincidence. However, as I have explored the topic of novelty in both authors, I have found that their interpretations of *creative love* are strictly connected with the nature of creativity and novelty. As I have stated above, novelty lies at the intersection of continuity and discontinuity. It therefore has a paradoxical structure caused by the interplay of continuity and discontinuity. The more one emphasizes the role of continuity, the more one will interpret creativity in terms of discontinuity. Similarly, the more one emphasizes the role of discontinuity, the more one will interpret creativity in terms of continuity. In any case, if we are to understand both creativity and novelty, we can never abolish one of these two alternatives: continuity and discontinuity. Furthermore, if we refer this last point not to the problem of creativity, but rather to that of novelty itself, we will find that, for both Peirce and Whitehead, novelty is neither an irreducible difference, nor an absolute originality.[14] Instead, the originality revealed through irreducible difference always entails something more: a *new types of order*, in Whitehead's own words.

In conclusion, for both Peirce and Whitehead, novelty and creativity can only be explained by considering what Peirce calls Firstness, Secondness, and Thirdness; and what Whitehead calls concrescence and transition. Only by including all these concepts

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[13] Cf. Henning 2015 (forthcoming, expected April 2015) on this point.

[14] Cf. Firstness *per se*, but also event and transition; Part II, Ch. 3, § 3.2 and Part III, Ch. 3, § 3.2.

can we account for the fact that "observation reveals continually increasing variety and complexity of phenomena [and] at the same time, the world is growing into increasingly complex established habits or laws" (Hausman 1974, 12). This is indeed the idea expressed by both Peirce's famous phrase "real chance begets order" (CP: 6. 594) and Whitehead's remark that "that type of order decays; not into disorder, but by passing into a new type of order" (SP: 2).

My analysis reveals how Peirce and Whitehead struggle to show that novelty is not only absolute originality, or irreducible difference. Rather, novelty always carries with it a meaning, without which we would be unable to notice that something new is happening in front of us. Furthermore, it is because of this meaningful side of novelty that we continuously reinterpret our past. Undoubtedly, with this regard many problems still remain, some related to the issue of novelty itself, some to the consistency of Peirce and Whitehead's thoughts. *In the long run*, hopefully, these problems will be solved. For the moment, however, I have begun walking on the path that Peirce's and Whitehead's examination of novelty has opened for us.

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