że to przedmioty się zmieniają, a więc wymieniają swe własności. Raczej skłonny byłby przyznać, że zmiana to następstwo różnych, odrębnych od siebie wiązek własności. Z kolei przedstawiciel teorii substratu mógłby uznać, że przedmiot przetrwa każdą zmianę, bo przecież o jego identyczności i indywidualności nie decyduje uposażenie właściwości ale bezjakościowy substrat. Uważam, że wkład Hartshorna w badania nad identycznością w czasie polega właśnie na zwróceniu uwagi na problem funkcji jakie w przedmiocie pełnią jego własności. Za jedno z najważniejszych zagadnień związanych z identycznością w czasie uważał on pytanie: „Jak dalece przedmiot a w szczególności jego tożsamość zależy od jego własności?”. Odpowiedź na nie wymaga jednak gruntownych badań nad funkcją własności, a co za tym idzie i nad formalną strukturą przedmiotu.

37 Ch. Hartshorne, Creative Synthesis..., op. cit. s. 178.

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PERSPECTIVES OF PROCESSUAL EMERGENTISM IN CONTEMPORARY PHILOSOPHY OF NATURE

The origins of process philosophy and of studies of the emergence concept reach the same period of time. A cooperation of these two traditions, although never clearly assumed, seems to be philosophically attractive, especially in the area of the contemporary philosophy of nature. The paper presents some commonalities between the process philosophy and the emergentism: one historical, the other problem-oriented. It also introduces conditions for the emergence relation as they are formulated today, and it presents the philosophical current of British Emergentism.

Introduction

This paper is meant to explore a possibility of co-operation between two philosophical traditions: process philosophy and emergentism. Such perspective emerges with the confrontation of two metaphysical systems, which were given by the British philosophy at the beginning of the 20th century. The first one is the philosophy of organism, formulated by A.N. Whitehead and his followers; the second is the achievement of the so-called British Emergentism represented by S. Alexander, C.L. Morgan, and C.D. Broad1. Following the fact that all

1 There are at least two oppositional interpretations of a mutual influence between the Whitehead’s process philosophy and the British Emergentism: the one claims
these philosophers developed their thought in a clear reference to the natural science, the philosophy of nature seems to be the best plane for comparing the two traditions. Issues such as: the essence of time and space, matter, life and mental processes are present in works of the above-mentioned authors, and at the same time they are never reduced to individual, independent problems taken by themselves. On the contrary, these questions come directly from the maximalistic presumptions of both systems, and become consequences and the integral part of wider philosophical investigations.

The paper is divided into two main parts. The first part presents the philosophical concept of emergence from two perspectives: (1) historical - the introduction of the British Emergentism, and (2) problem-oriented - which contains an actual apprehension of the emergence relation. The second part is the juxtaposition of basic theses of process philosophy and the emergentism in the context of the philosophy of nature. Again it is divided into two drifts: (3) historical - in which the analysis of comparable details of A.N. Whitehead’s and S. Alexander’s systems is to be undertaken, and (4) problem-oriented - where a possibility of cooperation of the two traditions will be made explicit.

1. The 20th century British Emergentism

There are many ways of understanding the domain of the philosophy of nature [e.g. Klósak 1980, Lemańska 1998, Hajduk 2004, Heller 2007]. At least some of them refer directly to the relation between the philosophical thought and the scientific inquiry. Here,

that there is no significant influence linking these two traditions [e.g. Lucas 1985], the second states that the influence was indispensable [e.g. Lowe 1949]. The following paper places itself closer to the second interpretation.

2 Even if (a) the paper contains main thesis of S. Alexander’s philosophy, and (b) Emergentist’s systems differed in the treatment of many particular problems, there are still arguments for understanding the British Emergentism as a tight metaphysic current, which created a homogeneous system. The second system here is obviously the A.N. Whitehead’s process metaphysics.

3 For example M. Heller [2007, pp. 11-16] enumerates seven different types of the philosophy of nature. Most of them somehow refer to the science. The author’s

the philosophy of nature develops in a strict connection with the results of the science. The concept of emergence constitutes a natural environment for so-understood philosophy of nature – it is originally derived from the philosopher’s reflections on phenomena described by the science. Investigators of the emergentism locate the beginning of the concept in J.S. Mill’s Logic, where the author introduces the distinction between a homopathic effect and a heteropathic effect [McLaughlin 2008, 25-29]. The former was to be present in physical sciences, where the action of a resultant force is a mere sum of all component forces. The situation is different in the latter case, which was produced by a chemical reaction, where the product of the reaction is not the sum of its reactants. Three decades later, G.H. Lewes called Mill’s heteropathic effect ‘emergence.’

The culmination of the history of emergence concept takes place during a short period of time in the 1920s. At that time, the so-called British Emergentism appeared in the Anglo-Saxon philosophy. Three most important books, revealing the doctrine of emergent evolution in a possibly widest, metaphysical perspective, were published in five years between 1920 and 1925:

- Space, Time, and Deity [1920] - S. Alexander’s work in two volumes, being the compilation of author’s Gifford lectures at the University of Glasgow from 1916 to 1918.
- Emergent Evolution [1923] - the work of C. L. Morgan which presents an approach to emergence at the interface between philosophy and psychology.
- The Mind and Its Place in Nature [1925] - C. D. Broad’s large and highly analytic work, in which – among other issues - the author considers the relation of the emergentism to materialism and mentalism.

The British Emergentists developed a vision of reality characterized by a hierarchical structure of beings; each one belonging to consecutive,
mutually dependent ontological levels. The mode of their connection is assigned to the emergence relation - each successive layer of the ontological hierarchy emerges from a previous one, which in turn constitutes its 'material' basis. What at a certain level possesses a 'mental' character, is either an emergent quality (Alexander), or an emergent law (Broad)\(^4\). Still, the British Emergents agreed neither concerning the number, nor the nature of the particular levels. For example, C.L. Morgan's fundamental level is constituted by a so-called atomicity, which includes material particles, while at the bottom of S. Alexander's system there is Space-Time, and the level of materiality emerges later. The culmination of an emergence process is also seen diversely. For Morgan the world's emergence culminates with the mentality, whereas in the metaphysics of Alexander - it reaches its limits with the quality of deity. Differently, C.D. Broad, who does not enumerate the layers of the hierarchy, taking them simply as given, concentrates his efforts on the ontological study of emergent laws and the possibility of their occurrence.

2. The philosophical relation of emergence

    Currently, the concept of emergence is making a comeback. P. Clayton and P. Davies [2006, 27] name that phenomenon 'the re-emergence of emergence', whereas M. Bedau and P. Humphreys [2008, ix] state: 'Emergence is now one of the liveliest area of research in both science and philosophy.' Many philosophizing scientists or philosophers with scientific background refer to the concept of emergence in their research within the borderline disciplines such as philosophy of science, philosophy of nature, and ontology. It is emergence where they search for an explanation of questions like the nature of time and space, the quantum phenomena [e.g. Szydłowski, Golbiak 2008], the problems of matter and life [e.g. Luisi 2006, Morange 2006], and also the nature of conscious processes [e.g. Sellars 1981, Sperry 1992].

\(^4\) Especially Alexander widely uses an analogy between the mind-body relation, as it is discovered in the human person, and the relation that occurs between successive ontological levels; see: McCarthy [1948, p.15].

Such a state of affairs brings the threat of misunderstandings. The main danger for the concept of emergence, as it is applied nowadays, can be expressed with words of M. Heller [2008, 113]: 'When any notion comes into the wider circuit, its meaning is immediately lost. It also concerns philosophical notions. In that situation they lose their primary, technical meaning (if they ever had one), and become carriers of slogan associations.' The application of a philosophical notion to the technical languages of various scientific fields, if it is valid at all, often runs the danger of loss of its primary meaning. The situation can be found repeatedly, when e.g. a physicist looking in the area of quantum cosmology, discussing the emergence of the early Universe from a fluctuation of the quantum vacuum, finds his intuitions impossible to justify on the ground of mere science\(^6\).

Not only the methodology of scientific investigation is violated in such cases, but also the reputation of speculative thought can be damaged and therefore be identified with divagations and unscientific conduct. To avoid such problems many particular conditions - which are to be satisfied by a philosophically understood concept of emergence - were formulated by several philosophers. The debate about these conditions is currently present mainly in the area of analytic philosophy. Among many diverse suggestions, three conditions are frequently taken into consideration: supervenience, irreducibility and downward causation\(^6\). The first condition is an ontological one, while the other two are usually regarded epistemological ones. J. Kim [2006, 548] defines them as follows:

a) **supervenience:**

'Property M supervenes on properties N\(_1\), ..., N\(_n\) iff whenever anything possesses N\(_{n}\), ..., N\(_1\), it necessarily possesses M.'

b) **irreducibility:**

'Property M is not reducible to properties N\(_1\), ..., N\(_n\) iff M is not explainable in terms of, predictable on the basis of, or derivable from N\(_{n}\), ..., N\(_1\),'

c) **downward causation** [after Campbell 1974]:

\(^5\) Similar difficulties can be found e.g. in biology, where the emergence of life is discussed, or in the cognitive science, which discusses the emergence of conscious processes from their neuronal basis.

\(^6\) There are other conditions of the emergence relation such as novelty, nonpredictability, nonadditivity, nondeducibility; for a detailed presentation and discussion see: Korn [2005, pp.147-148].
Properties at a higher level, H, *downwardly cause* properties at a lower level, L, *iff* (i) the level L properties are describable in terms that partially apply to level H properties, (ii) the laws holding among the level L properties are distinct from the laws holding among level H properties, and (iii) level H properties, and laws among those, must be invoked in the explanation of the level L properties.

The question of sufficiency and completeness of the above-mentioned conditions is still vividly discussed today [e.g., Korn 2005, Kim 2006, Bedau, Humphreys 2008]. The most controversial one is the downward causation, where the possibility of its verification is sometimes denied. Nevertheless, there is no doubt that with the emergence relation being defined this way the threat of misunderstanding at a methodological level is reduced, and it simultaneously becomes an interesting tool for researches within the philosophy of nature.

3. S. Alexander’s and A.N. Whitehead’s philosophy of nature

The style of pursuing philosophical problems by S. Alexander and A.N. Whitehead is concurrent in many places. An interesting fact is that such concurrence does not only concern the relation to the natural science, nor the form of written text, which could be easily explained by the British sources of both systems, which were created in almost the same *hic et nunc*. Their resemblance reaches much deeper - to the very conceptual scheme of both philosophies and to comparable consequences of applying hypothetico-deductive metaphysics.

Firstly, we will have a look at global features that bring both systems together, to continue later with more profound analogies.

D. Emmett [1992, 138] says aptly: ‘Both [thinkers] claimed that their metaphysics were extensions of physical science, and that their aim was to produce a “descriptive generalization”.’ She emphasizes that

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7 It is a well known fact that Whitehead studied the works of Alexander and of other British Emergentists, as well as they known the Whitehead’s philosophy. D. Emmett [1992, p. 137] maintains that: ‘They [Whitehead and Alexander – J.D.] always spoke of each other with great respect.’ However, a direct mutual influence between particular theses is not clear; see: Lucas [1985].

8 We arrive at this number after adding eight Categories of Existence, twenty seven Categories of Explanation, nine Categorical Obligations, and the Category of the Ultimate; see: P&R, pp. 20-28.
relatedness, and for their **similar subject-matter**. Both metaphysical currents – the process philosophy and the emergentism – constitute neither oppositional, nor independent trends. It seems that they are complementary to each other in some places.

For example, the **hypothetico-deductive method** of philosophizing seems to be similar in both metaphysics. Such a method entails a certain manner of investigation (top-down explication), and an exceptional role of the problem of time (Alexander’s dictum: ‘to take Time seriously’ [1927, I, 44]). Moreover, two classical philosophical problems the two philosophers have in common: the **one-many relation** and the issue of the metaphysical stuff **substantiality**. Furthermore, a production of the speculative, **conceptual scheme**, in perspective of which all further interpretations are achieved, is typical for both Process and Reality and Space, Time, and Deity. The tabularic juxtaposition below suggests that most of the one system’s essential notions find their equivalents in the other system’s technical terms:

<table>
<thead>
<tr>
<th>Whitehead: Process and Reality</th>
<th>Alexander: Space, Time, and Deity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relational space-time</td>
<td>Space-Time as the stuff and Motion</td>
</tr>
<tr>
<td>Events as organisms (actual entities)</td>
<td>Events as points-instants</td>
</tr>
<tr>
<td>Society of actual entities</td>
<td>Line of advance</td>
</tr>
<tr>
<td>Theory of prehensions</td>
<td>Principle of perspective</td>
</tr>
<tr>
<td>Creativity One Many</td>
<td>Nisus and Time</td>
</tr>
<tr>
<td>The advance into novelty</td>
<td>Time as the principle of unrest</td>
</tr>
<tr>
<td>Bipolarity of actual entities</td>
<td>Bipolarity of levels and things</td>
</tr>
<tr>
<td>Primordial and consecutive nature of God</td>
<td>God’s body and soul</td>
</tr>
</tbody>
</table>

The comparison between A.N. Whitehead’s and S. Alexander’s technical terms

These are just some of the conceptual resemblances that do not necessarily need to be fully adequate⁶. However, if just some of them are correct, then not only the philosophy of nature, but also the whole metaphysical thought, seem to be partially common to both Whitehead’s and Alexander’s philosophical approaches.

4. **Perspectives of processual emergentism**

Ultimately, an issue of a relation between the process philosophy and the emergentism can be elaborated without a reference to any historical system, and hence, the plane of a co-operation among the two metaphysical currents could perhaps be found. As one of the possibilities, the distinction between two types of emergence appears: the **vertical emergence** and the **horizontal emergence**. Roughly speaking, the former is represented by the tradition of British Emergentism, while the latter – by Whitehead’s process philosophy and its continuators. In the first type, the emergence relation introduces consecutive – during the process of the emergent evolution – ontological levels and new qualities that are connected with them. In the second type, the concrescence process of each actual occasion becomes the emergence of the new being from previous entities, which are qualitatively equal. The horizontal emergence may take place at any layer of the ontologically structured world.

Let us use Alexander’s system as an example. The British philosopher distinguishes five layers of the reality: Space-Time, Matter, Life, Mind, and Deity. Each higher level emerges from the lower, and the whole hierarchy is vertical. Let it be represented by a bottom-up arrow with five points marked – symbolizing moments of the emergence. Then, if we broaden such a scheme with a horizontal arrow, representing the one-many relation, we receive a two-dimensional diagram with two types of emergence: vertical and horizontal. Every emergence leads to the new quality, which constitutes a fresh unity and develops its own one-many continuum. Consequently, we can draw one horizontal arrow for each ontological level. Ultimately, after adding a number of vertical arrows, adequately for each one-many relation from the

⁶ For the further discussion see: Emmett [1992].
lowest level to the highest one, we receive the diagram that represents something one may call 'the woven structure of the reality':

![Diagram showing the woven structure of the reality](image)

The two types of emergence

The one-many relation, essential in both analyzed systems, acquires two aspects. Firstly, a sufficiently advanced multiplicity of beings establishes the foundation for the emergence of the new quality, which further 'governs' the evolution of many higher level existents. A fine example of that aspect is the emergence of life from non-living biochemical structures, which later downwardly controls organic feedback processes [Luisi 2006]. Secondly, the multiplicity of prehensions of various actual entities leads to the emergence of one, momentary existence, which again is being prehended by many consecutive generations. Such aspect, at the level of matter, may be exemplified by Feynman's path integrals formulation of quantum mechanics [Feynman 1985].

Finally, the process vision of the God's consecutive nature remains consistent with the becoming God of the emergentism. The whole Universe, constituting God's 'body,' is the non-additive sum (synthesis) of all actual entities prehensions, which are saved in God. Such an idea brings the conceptual God of the philosophy nearer to the religious vision of the co-feeling and co-suffering Savior [Whitehead 1974, 346].

10 Nevertheless, it is problematic whether Whitehead's God possesses the pulsating rhythm between One and Many, or not. Considering God as one actual entity, seems to prima facie exclude that interpretation. However, since He apprehends all satisfied entities, at least the many-one relation is to be present in the consecutive nature of God. The other opportunity is to follow Ch. Hartshorne and maintain that God is a society of actual occasions; see e.g. Weinandy [1985, 129-140].
Jacek Jaworski

JÓZEF ZYCZIŃSKI

HIPOTEZA POLA RACJONALNOŚCI

JÓZEF ZYCZIŃSKI’S HYPOTHESIS
OF THE FIELD OF RATIONALITY

The goal of my article is to present the hypothesis of the field of rationality which was formulated by Józef Życiński – one of the first Polish philosophers and theologians who has worked on Whitehead’s thought. Życiński’s hypothesis refers directly to Whitehead’s (most important/most famous?) metaphysical work – *Process and Reality*.

The hypothesis of the field of rationality assumes ontological priority of formal structures over the empirically observed nature. Thus it refers to the problem of the mathematicality of nature. It is said, as an argument, that without the acceptance of the hypothesis it is impossible to satisfactorily explain the practices of modern natural sciences. Because of its strong ties to Whitehead’s metaphysics, the hypothesis is embroiled in the problem of God’s being. The hypothesis is an original approach to the problem of God’s immanence in nature (the world) and God as simultaneously transcending nature (the world). Życiński rejects the pantheistic interpretation of Whitehead’s metaphysics and proposes a panentheistic interpretation of the field of rationality. Undoubtedly, the problem of God’s relation to nature is closely related to the problem of eternal objects – the problem of the mode of their existence. Whitehead’s theory of eternal objects is one of the most controversial questions related to his metaphysics. In Życiński’s approach, eternal objects are, as pure potentials, prehended by God. Thus they constitute God’s primordial nature. Eternal objects prehended by actual occasions in nature (the world) become in a certain sense real and fulfil their role of structuralizing the world’s macroprocess.