Variations on Process Metaphysics

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Edited by

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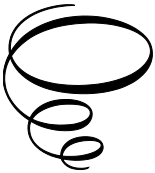

Variations on Process Metaphysics

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Edited by Alexander Haitos and Helmut Maaßen

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PREFACE

Variations is a musical term. It names a form founded on repetition and as such is an outgrowth of a fundamental musical and rhetorical principle in which a discrete theme is repeated several or many times with various modifications. The modifications may involve melody, rhythm, harmony, counterpoint, timbre, orchestration, or any combination of these. A theme for variations, rarely shorter than 8 or longer than 32 bars, may be a melody, a bass line, a harmonic progression, or a complex of such elements.[1]

The first example of variations occurred in the 14th Century, but it reflects a technique and process important in nearly all music, including music in which the improvised repetition of the strophes of song or dance forms is a part. Variations became a standard part of composition only from the 16th Century onwards. Since then, one can find a long list of variations from the Renaissance to the 20th and 21st Centuries. For example, Johann Sebastian Bach composed 30 variations of one aria, the so-called Goldberg Variations, and Sergei Rachmaninoff composed 22 variations on Frédérich Chopin's Prelude in C Minor, his Variations on a Theme of Chopin.[2]

Applying the term variation in a philosophical context allows us to widen the perspective of what could be done in the field of Process Philosophy. The following remark by Alfred North Whitehead on his philosophical method may offer a hint of what possibilities there are to deal with his way of philosophising.

> *Speculative Philosophy is the endeavour to frame a coherent, logical, necessary system of general ideas in terms of which every element of our experience can be interpreted. By this notion of 'interpretation' I mean that everything of which we are conscious, as enjoyed, perceived, willed, or thought, shall have the character of a particular instance of the general scheme.* (PR 3)

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[1] For a detailed list of possible variations, see the article *Variations* in Grove Music Online by Elaine Sisman (access the article from: <https://www.oxfordmusiconline.com/>).

[2] For more examples, see the above mentioned article *Variations* in Grove Music Online in particular the summary by Elaine Sisman.

The themes offered by Whitehead's speculative philosophy for possible variation are virtually endless. The general scheme of ideas, the elements of experience, and the interpretation of experience in light of the scheme are all capable of variation. But there is a certain thematic anchor of the variations, one that includes a resolute openness to experience in all its forms, a commitment to the idea that human intelligence can made headway in understanding the multifarious interconnections of things as experienced, and a recognition of the explanatory power of process. This anchor can be found—under modification, of course—throughout the present volume.

This book collects several essays on diverse aspects of Whitehead's philosophy. Ranging from comparative and historical studies to explorations of contemporary influence to possibilities for transforming future inquiry, the topics covered in this volume first and foremost point to the relevance of Whitehead's philosophy for our time. From this core, the essays in this volume highlight a range of issues to which process philosophy speaks profitably. These include philosophical questions surrounding motion, the notion of life, and aesthetics, as well as the conjunction of process philosophy with political science and with neuroscience.

These essays convey the potentiality and vitality of research into process philosophy, though of course they do not exhaust it. While each essay sounds a different tune, the whole represents variations on ideas important for both the topics under explicit consideration and for many others. The idea of process, as outlined by Whitehead, is a living idea, and its continued development and application is showcased in this volume.

This book will be welcomed by researchers and scholars who are seeking to deepen their understanding of and, importantly, stretch their imagination with regard to what process philosophy has to offer contemporary concerns. Whitehead's philosophy and process thought more generally expands on the core insight that dynamism and activity are central to reality and our understanding of it. Holding true to this insight, exploring its facets, and developing its potentialities, is a difficult task. But process philosophy has yielded and will continue to yield rewards in numerous areas of human inquiry, several of which are represented in the essays in this book, including political science, neuroscience, and aesthetics.

The essays comprising this volume give a sense of the variety exhibited by philosophies grounded in the explanatory power of process. There are essays here as much for the historically and scientifically minded as for the philosophically-minded.

RECEPTION OF WHITEHEAD´S PROCESS PHILOSOPHY BY NEUROSCIENTISTS

ELMAR W. BUSCH

Aim

A. N. Whitehead unfolds a metaphysics that should be valid to all aspects of the world. The foundations of his metaphysics are applied to various areas of the world. "*Thus the philosophical scheme should be coherent, logical and, in respect to its interpretation, applicable and adequate. Here 'applicable' means that some terms of experience are thus interpretable, and 'adequate' means that there are no items incapable of such interpretation.*" (PR, 3). In particular, his analyses of living cells, of the brain and of conscious events are emphasized and play a special role. Thus, the question is interesting, whether his metaphysics is received and recognized in neuroscience, which deals with the study of higher brain functions, and in mind/body-philosophy.

Content

In this investigation it should be considered first, why Whitehead might be interesting for neuroscientists. Therefore, the work of neuroscientists in their search of brain correlates of consciousness is considered and the difficulties and unsolved problems are highlighted. Then it is shown, based on citations from several works of Whitehead, that from his process philosophy a quite unique brain theory can be extracted, which culminates in concrete considerations of the description and localization of conscious events in the brain. This brain theory is contrasted to current perspectives of neuroscience on conscious events in the brain, and afterwards it is shown which neuroscientists refer to Whitehead in their work. In the interdisciplinary dialogue of neuroscientists and philosophers, as at the biannual Tuscon conferences (TSC), for example, the old idea of panpsychism has lately won new relevance. Whitehead's philosophy, in connection with the concept of panpsychism, can possibly attract more

attention in the interdisciplinary dialogue. Hence, this term will be considered in more detail and therefore a possible future perspective for Whitehead's philosophy in the context of neuroscience is described.

I. What is neuroscience doing?

What can neuroscience provide to solve the mind/body problem? Their scientific methods can discover, for example, cerebral correlatives that occur simultaneously with behavior, decisions, feelings and memories. A good example of this are studies with functional magnetic resonance imaging (fMRI). Furthermore, neuroscience can describe reasons and thus causal chains, which lead to the emergence of features. These obviously include the development from animal to human (in evolution) and from child to adult (ontogeny). Less obvious is whether the emergence of consciousness in the brain can be described. Furthermore, scientists can build models that simulate behavior. These include on the one hand models of genetically modified organisms and animals, but on the other hand also computers and robots that simulate the mental activity and behavior of people. However, to date no one has succeeded in determining neural correlates of consciousness in a way such that they can be distinguished by virtue of specific characteristics from correlates of non-conscious behavioral events.

Unsolved issues in neuroscience

Thus some big problems remain unsolved in neuroscience, problems which were respectively adopted conceptually by different philosophers. Under the umbrella term of mind/body—or conciousness/brain–problem, the actual "hard problem" can be differentiated. This includes the first-person perspective (Chalmers), the qualia problem with irreducible phenomena such as pain and color (Nagel) and the semantic content, as described by Searl in his metaphor of the Chinese room. The binding problem describes that it remains incomprehensible how the many individual phenomena of the brain combine to create a unified experience. Finally, our sense of intentionality (and linked to that of creativity) is not represented in the terminology of neuroscience, which is determined by causalities.

Urge to solve the problem

Taken together, this whole problem area can be described as an unsolved problem of mankind. However, it is by no means proven that the indicated problems cannot be solved. Neuroscience, cognitive science (with artificial intelligence (AI) and cognitive psychology) and philosophy benefit as from the double potentiation, on the one hand, of the data processing by IT and, on the other hand, of scientific exchange on the internet. In this vein, the first Tuscon conference in 1994 titled "Toward a science of consciousness" certainly was a milestone in interdisciplinary dialogue. Whether this scientific acceleration, as opposed to considerations of individual thinkers, will bring the solution of the above-mentioned problems any closer, currently appears unclear.

Whitehead's proposal for a metaphysical scheme can be applied to unresolved neuroscientific problems because it suggests solutions to the relevant single items, solutions for the first person perspective, the qualia problem, the semantic content, and for the binding issue. From a Whiteheadian perspective it is therefore desirable to step into a dialogue with the already established research on consciousness. This is even more so as Whitehead can be regarded as a neglected figure in this field *(Weber & Weekes)* [1]. A detailed debate within the established consciousness research with Whitehead's ideas has not yet taken place. This is probably due to the closed complexity of Whitehead's work and the difficulty of discussing individual aspects without having carried out a full analysis beforehand. This results in a lack of references and citations in the relevant literature that extrapolates in the scientific flow of publications. It seems unlikely that the avoidance is due to well-founded disinterest. However, with the term of panpsychism there are hints to a reinforced Whitehead reception. *"If this is changing, it is at least partly because outsiders are storming the museum" (Weber & Weekes)*[2]. Interestingly, the program of the TSC 2015 has listed a workshop entitled: "Dual Aspect Alternatives to Physicalism and Their Implications". Among the speakers there is William Seager, who is a profound expert of the panpsychism debate and Whitehead.

[1] Weber, Michel and Weekes, Anderson (2009) *Whitehead as a Neglected Figure of Twentieth-Century Philosophy*, in: Weber and Weekes (ed.), Process Approaches to Consciousness in Psychology, Neuroscience, and Philosophy of Mind. State University of New York Press, p57ff

[2] dito. *Introduction*. p2

II. Whitehead's Brain theory

Important questions

If we now consider Whitehead's ideas that we want to call his brain theory, then light and hard problems can be distinguished in a different way. With his metaphysics it is easy (light problem) to explain the first-person perspective and subjectivity, because these belong to the constituents of his philosophy. Qualia and semantic content too are part of the framework of his process philosophy. Difficulties arise, however, to integrate Whitehead's events (actual entities) within the frame of abstractions of neuroscience. This includes the question of how Whiteheads events, and especially conscious events, can be localized within the brain (hard problem). The binding problem appears somewhat altered within Whitehead's philosophy. Why do the billions of simultaneous events in the brain lead to the subjective feeling of a unified experience?

Whitehead has not examined these questions systematically. But there can be found many passages in his works where he actually applies his philosophy specifically to the described problems and thus offer solutions. The following examples of these applications will be presented as quotations, to give an overview of Whitehead's brain theory.

Life

First, Whitehead explores the question of what makes a cell alive in contrast to a mere accumulation of inorganic elements. It appears here as an emerging feature that results from the specific interaction of inorganic elements, that, in turn, makes these interactions possible. But in addition to the mere grounds for the existence of cells, life involves creativity.

> *"This is the theory of the animal body, including a unicellular body as a Particular Instance. A complex inorganic system of interaction is built up for the protection of the 'Entirely living' nexus, and the originative actions of the living elements are protective of the whole system. On the other hand, the reactions of the whole system provide the intimate environment required by the Entirely living nexus. We do not know of any living society devoid of its subservient apparatus of inorganic societies."* (PR, 103)

> *"Life lurks in the interstices of each living cell, and in the interstices of the brain."* (PR, 105)

> *"... Life novel and immediate, but deriving its richness by its full inheritance from the rightly organized animal body. ... Its sole use to the body is its vivid*

*originality: it is the organ of novelty." (*PR, 339)

Emotions

A particular strength of Whitehead's theory is the inclusion of emotions and creativity as a constitutive element of decisions. As in many other parts of his work, Whitehead developed his ideas in view of human experience, here human decisions, but in fact he means the subjective feeling and creativity of any event. However, in the developing chain from inorganic to organic to animal and eventually to human brain events, the abundance of perceptions changes.

"But 'decision' can not be construed as a casual adjunct of an actual entity. It constitutes the very meaning of actuality." (PR, 43)

"The former mode produces percepta which are vague, not to be controlled, heavy with emotion: it produces the sense of derivation from an immediate past, and of passage to an immediate future; a sense of emotional feeling, belonging to oneself in the past, passing into oneself in the present, and passing from oneself in the present towards oneself in the future; ... The stream of feeling which we are receiving, unifying, enjoying, and transmitting. This is our general sense of existence, as one item among others, in at efficacious actual world. " (PR, 178)

"The creativity of the world is the throbbing emotion of the past hurling itself into a new transcendent fact." (AI, 227)

"In the silence, the irresistible causal efficacy of nature presses itself upon us; in the vagueness of the low hum of insects in woodland on August the inflow into ourselves of feelings from enveloping nature overwhelms us; ... " (PR, 176)

Where is the conscious event?

From a neuroscientific perspective it seems necessary to *locate* correlates of consciousness in the brain, as appropriate causal chains must be described. Accordingly, Whitehead has commented on the localization of conscious events in the brain. In essence, he refers by analogy to the electromagnetic field in which specific waves can be located in space-time but are conceivable only by reference to the whole field. Besides, a certain expansion, a period, a whole wave vibrating in the overall system is necessary for each event for the realization of his relations to the world. An isolated moment in the sense of a time cut through a wave, however, is not

sufficient. Also, an electromagnetic wave isolated from the world is not conceivable.

> *"Every actual entity in its relationship to other actual entities is in this sense somewhere in the continuum, and arises out of the data provided by this standpoint. But in another sense it is everywhere throughout the continuum; for its constitution includes the objectifications of the actual world and thereby includes the continuum ... "* (PR, 67)

In the electromagnetic field:

> "*...with the denial of simple location we must admit that within any region of space-time the innumerable multitude of these physical things are in a sense superimposed. Thus the physical fact at each region of space-time is a composition of what the physical entities throughout the universe mean for that region."* (AI, 202)

As a whole period in a vibratory system:

> *"Suppose we keep to the physical idea of energy: then each primordial element will be an organized system of vibratory streaming of energy. ... This system, forming the primordial element, is nothing at any instant. It requires its whole period in which to manifest itself. In an analogous way, a note of music is nothing at an instant, but it also requires its whole period..."* (SMW, 37)

> *"Apart from some metaphysical compulsion, there is no reason to provide another more subtle stuff to take the place of the* matter *which has just been explained away...*physicists' energy *is obviously an abstraction."* (SMW, 39)

Consciousness

Consciousness is described by Whitehead as the perception of a specific contrast. It's the contrast that arises when current actual sensorial perception is integrated with perceptions that are possible, but not actual. Actualities are perceived and interpreted in the context of a world that only can be imagined.

> *"In awareness actuality, as a process in fact, is integrated with the potentialities which illustrate either what it is and might not be, or what it is not and might be."* (PR, 243)

"'What might be' has the capability of relevant contrast with 'what is'." (PR, 214)

Connecting his ideas of localization and of the origin of conscious events, Whitehead gives his ideas of their localization in the brain.

"Thus the negative perception is the triumph of consciousness. It finally rises to the peak of free imagination, in which the conceptual novelties search through a universe in which they are not datively exemplified." (PR, 161)

"The final percipient route of occasions is perhaps some thread of happenings wandering in 'empty' space amid the interstices of the brain." (PR, 339)

"Thus in an animal body the presiding occasion, if there be one, is the final node, or intersection, of a complex structure of many enduring objects…This route of presiding occasions probably wanders from part to part of the brain, dissociated from the physical material atoms. But central personal dominance is only partial, and in pathological cases is apt to vanish." (PR, 109)

"To sum up: (i) Consciousness is a subjective form arising in the higher phases of concrescence, (ii) Consciousness primarily illuminates the higher phase in which it arises, and only illuminates earlier phases derivatively, as they remain components in the higher phase, (iii) It follows that the order of dawning, clearly and distinctly, in consciousness is not the order of metaphysical priority." (PR, 162)

Person

With the idea of many simultaneous brain events the question arises, why do humans feel a unified experience as one person? This question refers to the binding problem. Whitehead describes here the idea of a hierarchical order of events in the brain, an order, however, that is quite delicate and can be threatened by mental illness.

"But a living nexus…may support a thread of personal order along some historical route of its members. Such an enduring entity is a ‚living person'. It is not of the essence of life to be a living person." (PR, 107)

"There are limits to such unified control, which indicate dissociation of personality, multiple personalities in successive alternations, and even multiple personalities in joint possession." (PR, 107)

Neurologist

Taking the viewpoint of a neurologist, Whitehead sums up and describes the emergence of consciousness and personality from the basal elements of the body.

> *"The neurologist traces first the effect of stimuli along the bodily nerves, then integration at nerve centers, and finally the rise of a projective reference beyond the body with a resulting motor efficacy in renewed nervous excitement. In* biochemistry, *the delicate adjustment of the chemical composition of the parts to the preservation of the whole organism is detected. Thus the mental cognition is seen as the reflective experience of a totality, reporting for itself what it is in itself as one unit of occurrence. This unit is the integration of the sum of its partial happenings, but it is not their numerical aggregate."* (SMW, 148)

III. Consciousness in neuroscience

Neuroscience methods

These positions of Whitehead will now be confronted with some approaches to consciousness-research within neuroscience. For this a quick overview about methods available in neuroscience might be helpful. In the field of imaging, functional magnetic resonance imaging has been established. Due to the rather high temporal resolution physiological variables such as blood flow changes and oxygenation can be displayed as a function of cognitive activities by test persons. As a result, discrete locations and time pattern of changes can be discovered in correlation with cognitive activities. By electrophysiological methods, spatiotemporal patterns of mental activities can also be mapped. Additionally, activity patterns in the brain can be selectively influenced by the application of focused magnetic fields and hence of electric currents in order to observe subsequent changes in the behavior of test subjects. Biochemical methods can describe local intensity changes of metabolic processes and, subsequently, by genetic engineering specific genes can be switched on and off in order to investigate the influence of these manipulations on metabolism and behavior in animal experiments. This way it is possible to detect causal relationships of biochemical processes and cognitive activities in animals. Overall, using these methods to discover space-, time-, and intensity-patterns as representations of cognitive activities in the brain, it can certainly be expected that we shall understand the preconditions of consciousness better and better. Nevertheless, it remains difficult to imagine

that with these objective methods alone the subjective nature of human experience can be explained.

Victor A. F. Lamme is a physician and neuroscientist and asked the question whether neuroscience can explore the true nature of consciousness[3]. For his analysis he uses the results of fMRI and electrophysiological measurements in visual perception to distinguish 4 spatial-temporal patterns. Each of these patterns has a combination of the features with/without attention and with/without consciousness. The influx of visual perception in the brain (feed forward processing) can occur with less or greater intensity (shallow or deep) and is accordingly associated with or without attention, but each without consciousness. Then there may be a further processing of visual perception by a backward loop through the brain (recurrent processing), which is then associated with consciousness, but as before in two intensities (shallow or deep), that means without or with attention.

Christof Koch (The quest for consciousness) [4] represents a strict neurobiological approach, in which he attributes a special role to possibilities of genetic engineering. He is confident that the underlying mechanisms of cognitive brain performance can be understood through comprehensive analyzes by switching off and on of DNA in test organisms. It would then be possible to convert these results into computer algorithms and thereby generate consciousness in AI surroundings.

The physicist *Penrose* and the anesthesiologist and psychologist *Hameroff* (initiator of the first TSC 1994 and author of the film "mind ville") developed an approach by which they are trying to transfer knowledge from quantum physics to the brain. In their theory of orchestrated objective reduction (Orch OR) they ascribe special abilities to the microtubules of cells so that they use quantum properties in such a way that consciousness and free will originate. In their work, they explicitly recognize Whitehead and find parallels to their own theory. *"Whitehead's occasions are consistent with modern views of time as independent snapshots, or "Nows", with our conception of the flow of time being an illusion based on memory".* [5]

Neuroscientific determinism dominated for a long time in Germany, represented by the two authors *Singer and Roth*. Thus the question was introduced into the public debate, whether individuals can be held at all responsible for their actions, suggesting possible criminal offenses were

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[3] Lamme, Victor A. (2004) *Can Neuroscience Reveal the True Nature of Consciousness?*

[4] Koch, Christof (2004) *The Quest of Consciousness. A Neurobiological Approach.*

[5] Hameroff, Stuart (2003) *Consciousness, Whitehead and Quantum Computation*, in: Riffert Franz G. and Weber, Michel (ed.) Searching for New Contrasts, Frankfurt am Main, p65

also predetermined by the biological determinism. Accordingly, even changes in legislation and court ruling have been proposed.

To sum up, these examples should indicate that neuroscience contributes thrilling results and interpretations to the discussion. In the future and by these results it can be understood better and better how the integration of actual sensory data with commemorative content is the precondition to higher human cognitive performance as far as attention, consciousness and complex emotions are concerned. Nevertheless, it is not foreseeable that the objective results and models of strong determinism can jump over the crucial hurdle to understanding of subjective qualities (the hard problem). There remains a gap that can possibly be closed only by more metaphysical analysis.

IV. Neuroscientists on Whitehead

While many well-known neuroscientists have published major monographs containing their theories of the brain, these have no references to Whitehead. These include, *John Eccles* ("*The Self and Its Brain", 1984*), *Christof Koch*, ("*The Quest of Consciousness: A Neurobiological Approach", 2004*), *Gerald M. Edelmann* ("*A Universe of Consciousness: How Matter Becomes Imagination", 2000*) and in Germany, *Gerhard Roth* (*The long evolution of brains and Minds, 2010). Antonio Domasio ("Self Comes to Mind: Constructing the Conscious", 2012)* is a clinically active neurologist. He was able to demonstrate correlations of cognitive limitations and disturbed brain regions by his anatomical lesion studies. Overall, he refers to a position of emergence of cognition as a novel quality in the evolutionary history, but again without consideration of Whitehead.

A special case is the clinical neurologist *Jason W. Brown*, who has developed a so called "microgenetic theory" *(Mind and Nature)*[6], which leans very closely towards Whitehead. The analogy goes so far that a demarcation to Whitehead seems difficult in this case. A foundation in his own neuroscientific findings and clinical observation is claimed, but cannot be reconstructed from the writings. Furthermore, relations to current neuroscientific positions, as shown above in examples, remain very vague.

As above already stated, explicit references to Whitehead are found in the scope of the Orch-OR theory by *Penrose & Hameroff*. Here there is also a reference to a "modern whiteheadianism" as represented by authors such as Shimony and Strawson.

[6] Brown, Jason W. (2000) *Mind and Nature. Essays on Time and Subjectivity.*

Finally, there are indirect references to Whitehead in the more psychologically oriented cognitive science, especially in the scope of the "materialized cognitive science". There is recognition of the fact that cognition cannot be explained without reference to a specific body and a specific environment (Physicalization, Embodiment). The idea that cognition arises from bodily processes also underlies Whitehead's theory. On the other hand it is doubted that cognition can take place in a world of purely abstract symbolic representations, regardless of the on goings in an external world. Thus the possibility of the emergence of consciousness as a product of AI seems unlikely. Representatives of this direction, with relations to the phenomenologies of Maurice Merleau-Ponty and Edmund Husserl, are Alva Noë, Susan Hurley, Evan Thompson, Francisco Varela and Kevin O'Regan.

V. Panpsychism and Whitehead

Of particular importance is a development of the past 20 years, in which even important representatives of analytic philosophy, such as David Chalmers, examine the assumption of panpsychism (PP). In *"The conscious mind"* [7] Chalmers describes 'experience' as a fundamental feature of the world. *"... experience itself as a fundamental feature of the world"* [8], *and "Why should physical processing give rise to a richer inner life at all?"*[9].

He views the binding-problem as a critical and unresolved issue of PP. Chalmers places the PP into the tableau of philosophical positions between materialists and dualists. In the middle are positions that view the mind as an epiphenomenon or consider its emergence as a new evolutionary quality. In assigning the positions the issue of self-causation appears most important for Chalmers. While none of the positions of materialism, of mind as an epiphenomenon or as an emergent feature can substantiate self-causation, this appears possible with panpsychism without landing in the trap of dualism with its lack of foundation in biology.

Chalmers undertakes to investigate several variants of PP and, hence, shows that it has found its place on the agenda of analytic philosophy. With the exception of Hameroff, as shown above, this new development is so far

[7] Chalmers David J. (1996) *The Conscious mind. In Search of a Fundamental Theory.*
[8] dito, p201
[9] dito, p210

not reflected in neuroscience. Chalmers [10] distinguishes the different possibilities of PP with special reference to Russell *(1927)*. In particular, he separates a constituent from a non-constitutive PP that he assigns to the theories of emergence. He describes Russell's PP as constitutive, describing the micro phenomenal characteristics as the very essence of things. Particularly important is the distinction of a pan-proto-psychism. It only becomes clear in this variant that PP can also be assumed if no properties of the human mind are to be attributed to the anorganic things in the world. Cognition of man arises from precursors of the psyche. More extensive studies of the current debate are published by Rosenberg (2004), Skribina (2005) and Strawson (2006).

Whitehead as panpsychist

Although Whitehead has not called himself a panpsychist, the parallels to his work are evident. His process philosophy can be described as proto-pan-psychism. To emphasize important elements D.R. Griffin has also coined the terms pan-subjectivist and pan-experiential. On the other hand, the theory is constitutional, but not pan-conscious. Its universal proto-elements are subjectivity, experience, and information that is already constitutively present on the anorganic level. Mind does not emerge, but consciousness is understood as a climax and a particularly intense realization of basic spiritual elements. Expanding on Whitehead, it can be speculated that consciousness is dependent on the capabilities of brains to contrast complex memories and world-drafts with the actual sensations of organisms.

With the developments of recent years and the serious discussion of panpsychistic positions even in the mainstream of philosophy, it seems possible that Whitehead's philosophy comes to an advantageous position in a new way. With this background David Ray Griffin (1998) even speculated about a Whiteheadian century:

> *"One of my central purposes is to remove from the back of scientists a false problem with which they have been saddled by bad philosophy, so that they will be free to work without distraction on the properly scientific dimensions of the problem of consciousness. That is, most scientists working in this area have been trying, among other things, to answer a question that this impossible in principle to answer. No amount of empirical research, no*

[10] Chalmers, David J (2013) *The Combination Problem for Panpsychism*. Opening presentation to Panpsychism on the Reef, Lady Elliot Island.

matter how brilliant, can answer such a question." [11]

VI. In future

Which developments for the future seem possible against this background? Several authors underline the necessity of metaphysical theorizing and thus counter a purely objectivist neuroscience. Metaphysical theorizing can show directions and develop new ideas for the neurosciences and can allow a deeper interpretation and understanding of scientific data.

"…metaphysical speculations have proven to be indispensable engines of scientific progress…" [12]

"There is a critical-creative interplay between the general metaphysical theory and the more special theories of science, which enhance the development of both…" [13]

Consciousness as contrast

Building on Whitehead's idea of consciousness as a perception of contrast between actuality and possibility, and in accordance with neuroscientific results as by V. A. F. Lamme (see above), the central meaning of memory for consciousness can be concluded from the metaphysical analysis. The emergence of consciousness is dependent on the ability of brains to save memory content, to store it sleeping and to wake it, as needed, as complex actual memories, so that by using this commemorative content current sensory data can be integrated as representations of possible worlds.

Following this assumption and depending on memory performance, consciousness may be present with varying intensity. Therefore, it grows from earlier forms, up from cells to animals and to humans with increasing intensity, and again differently from embryos to babies to children to adults. Besides, certain features of neurobiology can possibly quantitatively enhance, ease and accelerate the handling of memories. Such specific and exclusive biochemical mechanisms might explain the special position of man in relation to his exclusive consciousness and the associated cognitive

[11] Griffin, David R (1998) *Unsnarling the World-Knot. Consciouness, Freedom, and the Mind-Body Problem*. p7
[12] Lenk, Hans (1978) *Wissenschaftstherorie und Systemtheorie. Zehn Thesen zu Pradigma und Wissenschaftsprogramm des Systemansatzes,* in: Hans Lenk, Günter Ropohl (ed.) p58
[13] Bunge (1977) *Philosophy of Physics*. p7

performance.

The neuroscientific problem to discover and describe such relevant biological mechanisms can in turn be derived from such metaphysical analysis. On the other hand, this theory formulates arguments about why AI cannot produce conscious events.

Binding problem

An approach addressing the binding problem can also be suggested and might offer stimulation for neuroscientific research. The acceptance of the idea of a huge variety of simultaneous conscious events in a brain is no contradiction to the uniform perception of the world through a person when the relative time structure is considered. A conscious event in the brain can neither experience its own appearance and disappearance, nor can it experience exactly concurrent, simultaneous events in its brain as objects. Past events will not be perceived as a metaphysical series of individual events, but their contents will flow constitutively into the new.

Moreover, the brain and its associated body can always act as only one body and is thus forced to make uniform decisions for the many body events. Movements can take place only in one direction and language can form only one sound sequence. Beyond it, the events within a brain experience massive information processing and reintegration, so that they share a very similar story in the world and thus don’t express any contradictory content. In this way we can speak of a prestabilized harmony not only in living cells (Whitehead), but also in brains.

ON THE EDGES OF *HEIMAT*: A TRANSLATION OF PROCESS PHILOSOPHY INTO POLITICAL SCIENCE

DR. JOACHIM KLOSE

It is obvious that we have made a mistake in thinking that the market can regulate everything. What we call property, and work, is no longer tied to place, and this leaves people confused. As human beings, we are not really mobile – we remain tied to our bodies and our history, and our senses seek something to hold onto in familiar places.[1]

1. Introduction

As an exporting country, Germany benefits more than almost any other country from globalization and a unified Europe. Globalization and modernization processes are paths to success, but at the same time, they are also currently leading to a refocusing on roots and identity. People's origins are becoming defamiliarized as quickly as their living conditions and regional reference points are changing. "While we can communicate and act globally, it is impossible to live globally."[2] The balance between mobility and being open to the world on the one hand, and being tied to a locality on the other, is a fundamental anthropological requirement.[3] If the criterion is no longer that which is valid regardless of time, but change itself, then processes become important. And as a result, people start to search for *Heimat* - a German word meaning homeland with the connotation of cultural roots. *Heimat* is not the counterpart of globalization, but its necessary lynchpin.

The term *Heimat* is and has been repeatedly misused because of its existential dimension. It is therefore necessary to liberate it from its barren definitions and the distorted perspectives of its meaning. In order to do

[1] Reitz (2004).
Safranski (2003).
Beutner (2008), 15-32, esp. 23.

this, places of familiarity have to be identified and one's external life context must be reflected. Not only that, but internal life parameters, such as personal philosophy and religion, also play an important role in the analysis of *Heimat*.

When the definition of *Heimat* is considered in this complexity, it not only reveals similarities with Alfred North Whitehead's actual occasion, but it also shows that *Heimat* itself is an example of an actual occasion. With that said, *Heimat* is a springboard into Whiteheadian thought, too. This means that process philosophy provides an appropriate framework for interpreting the definition of *Heimat* by which present societal developments of globalization and their problems can be understood. The current discussion of *Heimat* in political science bears resemblance to Whitehead's speculative thought and shows its relevance. The objective of this text is to uncover the connections between the discussion of *Heimat* and Whitehead's process philosophy and thereby make them useful for each other. In order to do this, a short look at actual occasions must first be addressed. For the interpretation of *Heimat* it is important to show that actual occasions are not only microscopic quantum happenings but rather macroscopic, spatiotemporal happenings. Secondly, the definition of *Heimat* will be introduced and analysed on the basis of the described actual occasions. And lastly, an illustrative analysis of the relevance of these reflections will be presented by means of a current sociological process occurring in Dresden, Germany.

2. Actual Occasions

For Whitehead the whole being of reality is in the process of becoming and passing of the actual occasions. They are "happenings", each of which comes into being and then perishes, only to be replaced by a successor. These experience-like "happenings" are the basic realities of nature. The concept "actual" rejects every attempt to find a reality behind them (PR, 75). They are not momentary events like cuts through reality but rather forms which have the properties of spatiotemporal extension and creativity. Every actual occasion is a spatiotemporal unit possessing an indivisible volume and time quantum which cannot be disassembled without being destroyed (PR, 219), and each actual occasion possesses its own defined space-time position (PR, 73). It follows that it neither moves nor changes (PR, 77). Actual occasions express the uniform space-time structure of the universe because their external relations fit them into superordinate actual occasions, and their internal relations divide them into subordinate actual occasions (PR, 308 f.). Actual occasions whose unity

can be dissolved into subordinated actual entities are called “Nexus”. These are normal, everyday objects like trees, houses and cars (PR, 56). Nexus take into account the unity of contemporary events which are not causally tied together. If a Nexus owns an ordinal degree, Whitehead calls it “society” (PR, 89 f.).

The content of an actual occasion is only constituted by perceptions. Whitehead's philosophy of organism is a generalization and extension of his theory of perception. So the “perceiving” actual occasion is connected with other occasion by perceptions. However, perception is not limited to sensory perception; it refers to every kind of influence. In order to contain “unaware recognition”, the concept “prehension” was introduced. Every entity which is prehended as a unity is an actual occasion. “God is an actual entity, and so is the most trivial puff of existence in far-off empty space” (PR, 18). Therefore, actual occasions are not only microcosmic entities as is often maintained. Sherburne as an example maintained that actual entities are solely microcosmic entities.[4] In this case, Whitehead’s monadic system would contradict our normal understanding as well as our philosophical and scientific models.[5] For Whitehead, the whole universe, as well as a single atom, is an actual entity.[6] He turns against the bifurcation of reality into a mathematical-logical world and the apparent world (R, 61 f.). Well-established concepts of science refer to the factors which are found in nature and do not form a reality in opposition to the reality of nature. They are derived by logical abstraction from nature and represent the relationships between these factors. One of the main pillars in Whitehead’s natural philosophy is the method of extensive abstraction. The method is a logical model which links the content of perception as a whole with the conceptual framework of science. By the method of extensive abstraction, sense objects are arranged in converging series wherein each object contains a smaller one. In this way Whitehead is able to connect scientific objects like electrons or atoms with sense objects.

> He distinguishes between them, not as does Newtonian and Einsteinian physics on the old bifurcationary basis, according to which the colours and sounds are sensed data and the electrons and protons are unobserved postulated entities too small for the senses to detect, but upon the basis that both atoms and sense data are immediately sensed adjectives of immediately sensed events, the difference between them being that the adjectives which are colours and sounds depend upon the relation between the event which is their sensed locus and the percipient event which are

[4] Sherburne (1981), 205, 230.
[5] Fetz, Reto Luzius, Seidenfuß Benedikt, Ullrich, Sebastian (2010), 34.
[6] Klose (2002), 96.

> scientific objects such as electrons are more persistent and are a function only of the events which are their sensed locus.[7]

If all knowledge is reduced down to microscopic particles in presentational immediacy alone, relations are not perceivable. In these cases there is no empirical knowledge of an extensive continuum and it is impossible to adequately present the phenomena of the world. Whitehead calls this restriction, following Santayana, the "solipsism of the present moment" (S, 33), or respectively, "misplaced concreteness." He finds sufficient evidence for causal connections and temporal continuity already in sense perception. The tacit presupposition of this evidence is the experience of temporal and spatial extension. Temporally adjoining events are present contemporaneously in a specious present and perceived with their spatial and temporal extension together. The specious present does not contain only unique perceived events, it includes also the immediate past.[8] The presence of immediate past events shows that present and future events have to fit in with earlier events in the same way that immediate past events had to fit in with more distant past events (S, 50).

There is a significant difference between perception, which is causally influenced by perceived objects, and prehension, which also means a coming together of very distant and different parts of reality (PR, 308). The theory of prehension describes the development of reality from present to future. Then "causality is merely the way in which each instance of freedom takes into account the previous instances, as each of our experience refers back through memory to our own past and through perception to the world's past."[9] A growing actual occasion is not the perceiving subject in the process of prehension. The perceiving subject does not exist before the perceived events and is not their contemporary. On the contrary, the perceived events are temporal before the objectifying actual occasion. Prehensions grow together into a new unity. But although all actual entities of the universe are prehended, not every actual occasion contributes to the new actual occasion. Otherwise, all actual occasions would be the same and, therefore, indistinguishable. The becoming actual occasion selects all "positive" prehensions for its construction by presenting itself in the concrescent process as the aim of this process. In respect of this subjective aim, actual occasions are both subject and superject in one event - the superject being the decisive element in the

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[7] Northrop, Filmer S.C.: Whitehead's Philosophy of Science. In Schilpp (1991), 167-207, 189/190.

James(1890), 606.

[9] Hartshorne(1977), 188.

process. And nature does not appear as coexisting, separated particles of matter anymore but rather as a network of organically interconnected entities. All positive prehensions are called “sensations" or feelings. An actual occasion “feels” the contributions of other actual entities and integrates them into its construction (PR, 56 f.).

If an actual entity always and unavoidably reaches its subjective aim, all future events would be determined by present ones and vice versa. This is not the case. The subjective aim is a future aim of a present development envisaged by the becoming actual occasion. An actual occasion is finished if a certain grade of satisfaction is reached which will then be decided by future actual occasions. The subjective aim will be perceived as a date of the actual world, which is contemporaneous with past actual entities.[10] It determines which prehensions deliver a positive contribution to the growing actual occasion. It becomes apparent that one can only distinguish between subjective aim and satisfaction if the concrescence process is limited in time. Whitehead presupposed that teleology assumes temporal atomicity, and that temporal atomicity is only possible in a state of reality which is teleological (PR, 19). In a cosmology with a continuous concept of time, real becoming is impossible; there are only changes which are transformations from one state into another. However, a physical process, which is teleologically constituted, assumes an aim of development for the single entities.

Despite the fact that Whitehead probably did not study the theoretical basics of quantum theory in detail,[11] their first models led him to his speculative philosophy[12] (especially Bohr’s atom model (1913) and de Brooglie’s wave theory (1921)) (CN, 119 ff.). According to this understanding, the “particles” of reality are no longer material static forms but spatio-temporal extended events. Whitehead explains that it is equally possible to arrive at his organic conception of the world from psychology on the one side and from mathematical physics on the other.[13] “Quantum theory gives us a mathematical model, not of an independent reality, but of our perception of reality."[14] But quantum events behave as a unified system: “What *you do to it* in one place can influence how it will react to a *simultaneous* probing far away."[15] Whitehead has been blamed for having only a causal theory of perception with which he could not account for

[10] Löw (1980),292.
[11] Palter(1970), 215 f.
[12] Klose (2009), 151-170.
[13] McHenry (2002), 168.
[14] Hartshorne (1977), 189.
[15] Stapp (1993), 30.

contemporary events.[16] But for him, the available information about the (faraway) system which is disturbed by the (nearby) measurement and the nearby system are one and the same actual occasion. “Just as, for some purposes, one atomic actuality can be treated as though it were many coordinate actualities, in the same way, […], a nexus of many actualities can be treated as though it were one actuality” (PR, 287). We have physical as well as philosophical reasons to dismiss the idea of independent events.[17] The internal concrescence process of an actual occasion is not a spatiotemporal process. But the way in which its results are `made available' to the external world is an atomic act. A becoming actual occasion receives past actual occasions as potentials for ingression into its own development. The development is one from potentiality to actuality and from actuality to potentiality. The potentials of past actual entities are interwoven into a unit by the activity of the growing actual entity. The newly grown actual entity is a real potential for future concrescence processes.

Reality is the common presentation of two kinds of processes depending on whether it is considered from an a) internal or b) external perspective: concrescence and transmission (PR, 51). The internal process is the process of concrescence; it makes up the essence of actual entities and is teleologically structured. The external process is the transmission from actual entity to actual entity. It describes changes within societies of actual entities and is characterized by causality and conformity (PR, 210). Transmission is a process of concrescence processes, and concrescence is a process of transmission processes. Reality is a process of processes. Every actual process contains a huge number of interlocking actual processes. The whole universe is a single process as well as an infinite complex of processes.

Based on the *Beheimatungsprozess* (the process of feeling at home), transmission describes the process of *Beheimatung* to *Beheimatung* and concrescence of the respective individual *Beheimatungsprozess*. That which is socially referred to as *Heimat* is a result of a process of *Beheimatungsprozessen* (processes of feeling at home) and, at the same time, a Nexus of individual *Beheimatungen* (feelings of being at home). However, what is *Heimat* and how can the definition be made useful for political discourse?

[16] Stapp (1979), 2.
[17] Hartshorne (1977), 185.

3. Actual Occasion "Heimat"

In the present worldwide state of permanent crisis (9/11, the financial crises, Ukraine, ISIS) local regionality appears to be the last manageable haven.[18] The Rheingold Institut for quantitative market and media analysis in Germany observed a return to the traditional, authentic and native/original and reported a newly awakened longing for *Heimat* across the globe.[19] The reasons for this are varied. Through mobility, flexibility and rapid communication, space and time are certainly more available, but when knowledge and information can be exchanged without time delays, it leads to compressions in time and generates the desire to look inward. "Panic which used to be localized (e.g. through natural disaster) now threatens to go global."[20] This occurrence is intensified by the media with the result that solely images linger, perpetuating fear.[21] Consequently, the crisis of modernity has its origins not only in the breakdown of the idea of progress, but also in an abundance of time and space.[22] The worry of feeling left alone on one's speck of earth with the exceedingly large problems of the world is enhanced by already noticeable demographic changes, namely where a rapidly expanding population crowds together and where the population ages and shrinks.

Generally, *Heimat* denotes the images and myths with which one has grown up, the place of origin that is inaccessible, into which one has been born and which provides the existential foundation as expressed by language, customs and patterns of behaviour. At the same time, *Heimat* is the place of comfort and security, and it is a place which one understands and in which one is understood. The sense of *Heimat* gives one the feeling of safety and acceptance. As such, a positive understanding of *Heimat* is a prerequisite for stability, order and orientation in how we experience life and how we act in it. The Old High German word "heimuot(e)" etymologically contains the Indo-Germanic root of "kei", meaning **"**to be located**"**. Therefore, "Heimat" is the place where one makes his home. The concept indicates tones of security and rest. Having a home makes it possible to enter into commitments and to stay by oneself despite being constantly on the move.

Until the second half of the 19th century, the word *Heimat* tended to have a purely economic meaning, as exemplified by terms such as

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[18] Hamel (2012).
[19] Saunders (2011).
Wagner (2011).
[21] *ibid.*
[22] *Cf*. Augé (2010), 38ff.

Heimatrecht (right of residence or local citizenship with associated local social welfare rights) and *Heimatbesitz* (ownership of property in a certain locality). *Heimat*, however, is not a region one can pinpoint on a map, but rather our internally conceived relationship to the world. It must be actively acquired; it requires one to *make* oneself "*heimisch*" (at home). *Heimat* is something that comes to one; it forms unnoticed and is constituted by realities in which one finds oneself. Thus, one becomes aware of what *Heimat* is only when one experiences what is not *Heimat* and when one encounters the unfamiliar and alien.

The notion of *Heimat* clashes with the inaccessibility of material and nature, culture and society, and everyday life and political order. On the one hand, each calls for individual acceptance and adaptation, but on the other hand, each is constantly modified and transcended from appropriative particulars and is a result of human activity. As a result, *Heimat* is always *Heimat for someone*[23]– like color is relative to each individual's color perception. In the notion of *Heimat*, interior and exterior reality, which can't be substantially solved, becomes entangled. *Heimat* is not only a result of subjective constructions, but the geographic and situational positioning of personal events and autobiographical processes. Similar to an actual occasion, *Heimat* does not move nor develop. It is what it is and where it is.

One difficulty in the scientific acquisition of "*Heimat*" is that the objectifying sciences aim "to gain knowledge whose subjects are no longer *daseinsrelativ* (relative to being) in life and are not comparative to its possible values"[24]. The anthropological investigation of *Heimat*, by contrast, focuses on the innermost core of individuals, and at the same time, inquires about its relevance for the development of a collective identity. The exploration of *Heimat* from ethnological and anthropological standpoints by no means not only looks at individuals but also precisely at the societies of which the individual is a part. These standpoints are interested in focusing on individuals not only because social constructions are visible through them but also because, as a rule, they contain focuses on their connection to others as well. In other words, those "social bonds" which, out of individuals, make a community or society.[25]

Social relationships, however, always exist in space and time. In this way the preoccupation with "*Heimat*" shifts our attention to concrete places in which individuals feel at home and, thereby, to the relation of place and localization. In this sense *Heimat* proves to be an "organic

[23] *Cf.* Scheler (1977), 70ff.
[24] *ibid.*, 23.
[25] *Cf.* Augé (2010), 29ff.