

Unity of Mind, Body and World

Alfredo Pereira Jr. †, Wolfgang Baer ‡ and Massimo Pregmolato §

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in memoriam of Dietrich Lehmann*

Our Framework

“The Unity of Mind, Body and World” is the title of the book published by Cambridge University Press in 2013, edited by Alfredo Pereira Jr. and Dietrich Lehmann. This special issue of *Quantum Biosystems* is dedicated to the extension and discussion of the ten chapters of the book, written by an international multicultural team.

This time we cannot benefit from the leadership of Dr. Lehmann, who unfortunately died in 2014. His contribution to consciousness theory remains alive, being resumed in the Pereira Jr., Foz and Rocha contribution to this issue.

There are several pathways chosen by the authors to achieve the unity perspective. These pathways can be classified in two branches, the model-based and the ontological strategies.

The model-based strategy assumes that unity is found in the domain of our explanatory models of reality. In this approach, physical entities are conceived as explanatory factors within our theoretical models.

The ontological strategy assumes metaphysical commitments, in the sense of not denying the possibility that such theoretical entities, besides having a mind-dependent existence in our models of reality, also have a mind-independent reality.

The distinction between the two strategies is not absolute, since it can be claimed that the only way to describe reality is by means of models. The deeper issue – that will not be solved here – is whether models are just mental representations of reality, or if they share a degree of isomorphism with the structure of reality. An answer can be approached pragmatically – models can improve the actions of the user and then be evaluated according to the obtained results.

Both strategies aim to move beyond traditional views of consciousness based on dualistic (or trialistic) conceptions of mind, brain and world as separated domains of reality. In this regard, the new emerging framework *denies*:

a) The existence of a mind separated from a physical substrate. In traditional approaches, it is common to find the assumption of pure spirits without any physical support, or a transcendent God who is outside space and time and created the physical world from nothingness. Our perspective is not to deny the existence of a spiritual reality or a God, but to reconceive them

Address: † State University of São Paulo (UNESP) – Botucatu, SP, Brazil; e-mail: api@ibb.unesp.br ‡ Naval Postgraduate School, Monterey Ca, USA. Nascent Systeme Inc.; e-mail: wolf@NascentInc.com § Department of Drug Science. Viale Taramelli 12. University of Pavia. 27100 Pavia. Italy. E-mail: Massimo.pregmolato@unipv.it

in a unity framework. There are different ways to achieve the unity, which can be identified in the papers that compose this special issue;

b) The approach to brain function without considering its capabilities of conscious cognition and feeling. The influence of metaphysical assumptions of Modern science (such as Materialism and Mechanicism) on neuroscience led to the production of an impressive mass of studies that consider brain activity only in terms of its experimentally measurable electric and chemical properties and processes, or in terms of the expression of its activity on observed behavior. In our emerging framework, we look for the unity of the biophysical and the mental conceiving the mind/brain as a unitary system that can be viewed from at least two perspectives (first- and third-person). This philosophical perspective was developed under the labels of Dual-Aspect Monism (Vimal, 2013) and Triple-Aspect Monism (Pereira Jr, 2013);

c) Conceptions of physical reality devoid of mental and conscious potentialities. We are committed to Panpsychism (the idea that all physical reality contains a mental aspect) or Proto-Panpsychism (the idea that all physical reality contains the potentiality for a mental aspect). These philosophical assumptions naturally lead to a reconceptualization of the sciences of Physics, Chemistry and Biology.

We are therefore encouraged to explore the panpsychic requirement to include consciousness in the formulation of the physical sciences. *“The Unity of Mind, Body and the Universe”* included the Cognitive Action Theory (CAT) framework for the expansion of physics to meet this requirement. The following section summarizes an example of a theory of physics that includes consciousness in its foundations.

The Cognitive Action Theory Framework

The Unity of Mind, Body and World is achieved by treating all bodies, animate and inanimate, as events that contain both mental experiences (potential or actual) and the physical explanations of those experiences. That physics has always contained both aspects is not generally appreciated. However, if one looks at a second person, her behavior is explained by physical forces and also by the inference of mental forces. This addition of mental inference is required because the behavior of living conscious beings has no physical explanation in conventional science (Stapp, 1993).

A similar requirement exists for inanimate objects. If one looks at any object, its' behavior is first explained by the gravito-electric forces of classic physics. But this is not enough. Internal forces that hold the material together are required to fully explain the behavior of any object. This requires a realization by physicists, and materialists in general, that our physical theory of reality is not complete if only external gravito-electric forces are used to explain the motion of bodies. Internal forces are required and such internal forces are inferred from the externally observed behavior of all objects, whether animate or not.

Whether such inferences lead to the recognition of the weak and strong forces of quantum mechanics, or whether such internals are more usefully visualized as forces holding charge and mass together (as suggested in W. Baer's Cognitive Action Theory) is not as important as the fact that some unobservable internal phenomena are required to explain both animate and inanimate behavior.

With this step, a primitive mental aspect required for the explanation of

consciousness in humans has been extended to all bodies resulting in a panpsychic (Baer, 2013) or proto-panpsychic (Pereira Jr., 2013) model of reality.

The difference between Pan and Proto-Panpsychism can be conceived as the difference between consciousness held in closed or open cycles. For the Panpsychist, elementary particles (when not isolated) or a digital computer are incorporated in a larger closed cycle that instantiates consciousness. For the Proto-Panpsychist, an open cycle must have past and future boundary conditions applied; whatever consciousness is ascribed, it can only be in reference to the boundary and what is beyond.

Whether the internal forces are considered distinctly different from the external gravito-electric forces so that the term Substance Dualism can be applied, or whether such inferred forces are properly categorized as equally physical, depends on a philosophical choice. Since the inner and outer forces causally influence each other through absorption and emission, they can be described as sequential events in which a unity of mind and body exists. That unity applied to all objects allows us to conceive of the entire universe as an event, which differs from our human event selves only by scale.

Thus the CAT-framework presented in support of the event-oriented worldview unites the subjective and objective into an integrated combination of both. The immediate implication is that the Universe has both a traditional physical aspect and an appropriate mental (potential or actual) aspect. For those who believe in a transcendent entity, this combination is what God - the creator of both the physical and mental aspects - looks down upon.

Does this framework make sense? Is it useful? How does it impact other disciplines such as philosophy,

psychology, or neuroscience? The contributions selected for this special issue address the unity issue from different points of view.

(Re)Defining Consciousness

The difficulty of constructing a science of consciousness begins with the very definition of the term (Velmans, 2009). There are several usages in the philosophical and scientific literature, and the defense of each choice by proponents is based on unshared assumptions. In 2009, a special issue of the Journal of Consciousness Studies was organized by Chris Nunn on the topic "Defining Consciousness", serving to display the theoretical scenario concerning concepts of consciousness. This was also the starting point for discussions that led to the Unity book and to this special issue.

Two main conceptual choices for the use of the term appear in our special issue, corresponding to the (converging) views we named (in the previous section) "Panpsychism" and "Proto-Panpsychism". The conceptual difference is subtle, but may lead to a bifurcation in the research programs adopted by each side (of the same coin).

In the Panpsychist approach, optimally exemplified by Wolfgang Baer's framework, consciousness is built into action cycles. All processes in reality can be conceived as a form of action, whether a whole Universe, or a small part of it as the DNA (as proposed in John Grandy's paper) or the Human being. A primitive degree of consciousness is built into the happening of cyclic activity. Then consciousness of "something" is a disturbance from equilibrium in the activity cycle, but lastly it requires the recognition of a control lever (one's body) in the pattern of disturbance. The control lever distinguishes a dream state in which a disembodied scene is played out from an awake state in which the

phenomenological body is specifically controlled. The control lever sensation is then the recognition that transforms simple awareness into something like human waking consciousness.

A conscious entity should have the power to change some sensation, as if by will alone. When the action form makes a closed loop so that if Wheeler's measurement/explanatory feedback loop exists, consciousness exists. The size, complexity, or weight of the loop is specified by an adequate adjective (such as DNA, Human, or Bat consciousness). In this framework, there is no reason to draw a line starting at a fixed level or degree of consciousness. "What it feels like to be a bat", "What it feels like to be human", "What it feels like to be a DNA", are all possible questions for a science of consciousness.

This conceptual choice, which can be called "Adjective-Consciousness", affords the appropriate flexibility required by Panpsychist approaches. The degree of wholeness is directly proportional to the amount of interaction between activity cycles. A group of interacting cycles form a complex of cycles in which consciousness of a whole exists. Absence of interaction defines isolated action structures. If an elementary particle is cut out of the environment and treated as an isolated system, it would exhibit primitive consciousness, because one cannot isolate a system without allowing it to take on the closed loop form.

The other view, Proto-Panpsychism, assumes that consciousness exists in a potential state in all elements of reality, but exists in the actual state only in systems that satisfy adequate conditions, as being in low entropy states. In this case, it would not be correct to assume elementary particles as being conscious, since this idea would make the concept of consciousness meaningless or trivial. For unconscious mental processes in physical systems, the concepts of "Form"

and "Information" are preferred (Pereira Jr., 2013). All physical systems in all scales of activity have Form (in the Aristotelian sense of the term) and can process Information, but only a subset of them is conscious, because consciousness requires more than Form and Information: it requires Feeling (Pereira Jr., 2013). By means of cognitive and affective cycles, the Form becomes Information, and the Information becomes conscious for the system – if only if it can *feel* the meaning attributed to information.

In integrated systems (as living organisms), the cognitive/affective cycles of the parts participate in the consciousness of the whole - there is just one "I" who feels in the whole system (except, of course, in cases of mental disorders that "divide" consciousness). Otherwise, we would have so many "Is" as the number of our atomic particles, or the number of our cells. It is hard to conceive how - in the Panpsychist approach - this compositional problem could be solved to result in just the one and only "I" that we feel in our own conscious experience (the only one that we really have knowledge of).

In summary, the Proto-Panpsychist view holds the claim that consciousness exists in a *potential* state in any part of reality, but does not occur in *actual* states in each part of conscious systems: for consciousness to be actual, *it has to be felt* by a conscious "I". If we had millions of conscious selves, why don't we feel them? The answer seems to be that in integrated systems, as living systems, being conscious is an emerging property of the whole organism. All parts of the integrated system may contribute, in similar or different ways, to the systems' consciousness, by means of their informational unconscious activities, which become conscious only when *crossing the threshold of feeling*. This concept is compatible with the use of the term, in philosophy and in several scientific disciplines, for living systems

(Pereira Jr. and Ricke, 2009), and possibly extended to artificial, machine and plant consciousness.

General Guide to the QBS Special Issue Articles

Two categories have generally divided research programs in our community. Chalmers' "Hard-Problem" defines the "*in principle*" impossibility of explaining consciousness within the current scientific framework. However, most workers in the field are working on what might be called the "*Hard-Easy-Problem*". These workers attempt to understand consciousness within the established scientific framework, which makes their task "*easier*". Trying to understand how externally observed brain activity may be correlated to our 1st person experiences is exceptionally "*harder*". To conform to our unity theme, we divide the papers into three categories:

- 1) The hard problem
- 2) The easy hard problem
- 3) Transcendental frameworks for both.

In principle, the "*hard problem*" is solved by the stroke of a pen when we adopt Panpsychism. However, even with the additional assumption that events including objective and subjective sequences are fundamental, this proposition only opens the door to the hard work of actually defining a workable physics that can be shown to both duplicate and surpass the objective models currently in use. The adoption of foundational theories to this task is represented by the papers of Amoroso, Rauscher, Nunn and Baer.

These papers would support the physics extension based upon the speculations summarized in Baer's terminology, such as:

a) The mind-body is combined in an activity cycle transforming mind into body and back again;

b) Such an action cycle describes a universe that is experienced in the 1st person perspective as if the agent is inside a black hole;

c) From the outside 3^d person perspective, this leads to the Multi-Universe concept, which is identified with the new and expanded picture of a reality of interacting cognitive beings beyond our individual event horizons

The paper by James Lake supports Baer's conjecture that independent action cycles constitute the soul of beings, while accommodations to those cycles in the rest of the universe allow communication that must be established and can be abandoned. Lake states that near-death and out-of-body experiences have no survival value in our current Darwinian evolutionary emergence of life, but could be very important if communication channels are involved.

The bulk of the papers fall into the "Hard-Easy-Problem". These include papers by Radin, Mitterauer, Grandy, Pereira and Brandas. The issues dealt within these works are to define the objective or quantum structures and mechanisms in the living body that could correlate with consciousness. The difference between the two categories was elegantly stated by Amoroso in his paper. The easy-hard-problem addresses the question '*What processes in the brain give rise to awareness?*', while the hard-problem papers address the question '*What processes give rise to awareness?*' If one's own brain is identified as the seat of consciousness, the easy-hard-problem is to look into the brain to find out how it is done. If the brain is not necessarily the seat of consciousness, it makes sense to widen

the search and look into the outside world as well.

The remaining category involves papers that discuss the integration of object and subject from a transcendental point of view. This means that activities and relationships are defined like a algorithmic flow diagram, which provides a global architecture of how functional pieces influence each other, without necessarily defining the physical details that implement this architecture. Papers by Modell, Guimarães and Cottam fall in this category.

Whenever an architecture - such as a CAT-framework, hierarchical architectures, or global workspace - is built, it contains symbols that represent both physical and mental aspects. The physical aspect usually refers to the operations, while the signals that flow between the operations represent the mental aspect. The symbols of the model lie on a piece of paper (or in a computer memory) and the creator of the model is able to change anything anywhere anytime in the model. Even if the model is perfectly accurate, one has only established a metaphoric relationship between what is written and what happens out in the world that the symbols are meant to describe. However, when the metaphor is applied to one's self, a problem arises of identifying the meaning of symbols.

In a transcendent view of reality, God is to reality as the creator of the model is to the model. Thus all presentations of any model invite the existence of a model creator, which suggests a God. Mystics may feel as though they are merged with God while having their experiences. Physicists feel a kind of euphoria when they have created or understood what they believe to be the truth in their mathematics.

Since it is impossible to understand the model without placing its meaning into one's own mind, it is tempting to conclude that such an encompassing mind must be present.

From a scientific standpoint, this would be an inappropriate confusion between the model and the superstructure required to visualize the meaning of the symbols of the model. This very pervasive confusion is likely to be the basis of religious and magic thoughts. It causes endless trouble between organizations subscribing to the feeling of power that such confusions engender. However, religious and mystic approaches to an immortal soul, or to a creator God, do not properly address the phenomenology of consciousness (Velmans, 2009).

The same reasoning applies to transcendental approaches; it is important to identify the symbols that refer to one's self with the powers and properties given to those symbols within the framework. Only if subjective experience is built into symbols describing one's self, the architectures can be claimed to explain consciousness.

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