

Consciousness : An Integrative Systems Modelling Approach

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"If you want to understand the really interesting things about what the mind does, ranging from perception to language to consciousness, you have to build models",

- Paul Thagard, Professor of Philosophy and Director,
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There is a growing trend toward interdisciplinary investigation, as evidenced by the emergence of cognitive science and neuro-science as coherent fields [The Cambridge Handbook of Consciousness, 2007]. Another prominent contribution is the development of neuro-imaging techniques - including, electro-magnetic, physiological methods such as Magneto-Encephalography (MEG), and functional Magnetic Resonance Imaging (fMRI), which make it possible to treat consciousness in a rigorous and scientifically respectable fashion. With the currently considerable interest in exploring the neural-correlates of consciousness, there is also a growing realization that it will not be possible to make serious headway in understanding consciousness without confronting the issue of how to acquire more precise descriptive first person reports about subjective experience [The Cambridge Handbook of Consciousness, 2007]. Hence, the emerging Gestalt or systems approach for integrating Eastern and Western Perspectives of consciousness.

It is a truism that if we want to understand the hard and complex problem of consciousness, we need to build a model for it. Human brain is the most complicated machinery ever created by Nature. Seemingly unlikely sources such as fractals and internet communication have provided novel clues for understanding neuronal networks. However, externalized information is only as useful as its accessibility. Currently existing best-available search engines, such as Google and Yahoo, are very inefficient compared to the brain's search strategies to retrieve episodic information because neuronal networks utilize fundamentally different strategies for reconstruction of events and stories from fragments than do search-engines [Gyorgy Buzsaki : Rhythms of the Brain, Oxford, 2006]. Accordingly, [Chris Eliasmith : How to Build a Brain, A Neural Architecture for Biological Cognition, Oxford, 2013], one goal of researchers in neuroscience, psychology and artificial intelligence is to build theoretical models that are able to explain the flexibility and adaptiveness of biological systems. A special feature of the variety of wide-range of biologically constrained perceptual, cognitive and motor models illustrated in the foregoing book is that these models are not introduced as independent considerations of brain-functions by Eliasmith but instead integrated to give rise to what is currently perhaps the world's largest functional brain model consisting of 2.5 million neurons.

It is in somewhat similar strain that this vision talk purports to present consciousness from the twin integrative vantage points of Eastern phenomenological philosophy of Radhasoami faith (or Spiritual Philosophy of Eastern Saints) and Western Scientific Physical System Theory Modelling Framework.

A Science and Understanding of Consciousness: Bringing East and West Together

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Eastern religious and philosophical systems and the scientific approaches and methodologies of the West can be integrated. To begin this integration, a subject matter that provides a common ground is needed. This common ground can be based on the exploration and understanding of direct human experience. Furthermore, the topic most relevant to our conscious evolution and survival on this planet is related to the questions of “Who am I?” and “What is my place in the universe?” Some pivotal dialectics that underpin systematic exploration of answers to these questions include 1.) inner vs. outer viewpoints, 2.) alternative meanings of the self, and 3.) individuality vs. interconnectedness. East and West offer differing perspectives related to these areas. Through an *experiential approach and method* we can begin to see how these apparently different perspectives can be integrated. From an Eastern perspective, the inner viewpoint is emphasized and self relates to a sense of *presence* or *higher self and interconnectedness*. Oneness forms the basis of reality. From a Western perspective, the outer viewpoint is emphasized and self is equated with a unique identity (as designated by one's name) as well as personal history and individuality. Within this Western perspective, separate identities are part of the nature and fabric of reality. However, from the perspective of *human experience*, both inner and outer viewpoints exist. An example would be the experience of being aware from an embodied inner viewpoint and the experience of being aware and observed by something Higher from an outer viewpoint. It is also clear that we can experience a concrete defined sense of ourselves in the world as well as a higher sense of self or presence. Finally, through being aware, we can experience ourselves as differentiated but not separate. Individuals then become interconnected and part of the whole. From a quantitative perspective one could measure how close or far one feels from oneness. Still another example could be a measure of the strength of clarity of one's self-boundaries in relation to others. Both qualitative and quantitative studies of the meaning of consciousness as well as specific aspects of consciousness such as those mentioned above can be effectively researched using both the qualitative and quantitative methods of an experiential approach that is outlined in our book *Inner Experience and Neuroscience* (Price and Barrell, 2012, MIT Press). Integration of the systems of the East and methodologies of the West are possible when we base our research on a common ground, that is, a science of human experience.

From Quantum Biology to Quantum Consciousness to Quantum Psychiatry

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In this talk I will provide a brief overview of the state-of-the art in quantum biology, an area that has been making great progress as a result of very precise measurements, especially regarding photosynthesis. This also includes properties of metabolic processes across biological species. Allometric scaling laws can be clearly explained in terms of quantum statistics. Since metabolism is a distinguishing feature of living systems, I believe it has major implications for cognition as consciousness and cognition are limited to living systems. A connection between quantum biology and quantum consciousness is in my opinion still lacking and I will elaborate on how it can be implemented making theories such as OrchOR more realistic and experimentally testable if metabolic (non-equilibrium) features are included as prerequisites . Finally, in parallel, there has been interesting development in a new area where quantum physics impacts life sciences, namely in psychiatry. I will conclude my talk with a discussion about a potential for revolutionizing psychiatry by adopting advanced concepts in quantum theory, such as second quantization, q-Bosons and q-deformed algebras.

The Metaphysics of Consciousness: Eastern and Western Perspectives

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I explore some of the major background metaphysical issues involved in understanding the nature of consciousness, such as the traditional division between dualists and materialists, the debate between realists and idealists, and the prospects for solving the so-called “hard problem” of consciousness. Some of the differences in question often mirror the traditional differences between Western and Eastern perspectives on the nature of consciousness. Overall, I argue that some form of realism and physicalism is more plausible than the opposing views.

Descartes's *cogito, ergo sum* in the light of Hintikka's performatory interpretation

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Descartes's dictum *cogito, ergo sum* ("I think, therefore I am") is perhaps the best known sentence in Western philosophy. Yet its validity and relevance has been subject to numerous discussions. One of the most interesting of these was originated by Jaakko Hintikka's 1962 article "Cogito, Ergo Sum: Inference or Performance?" He suggested that there are several different arguments compressed into the formulation *cogito, ergo sum* which Descartes does not clearly distinguish from each other. The dictum can be seen as a logical inference. But it can also be seen as a performance, in the sense that when someone utters "I exist" this utterance has a self-verifying character. In this talk I will briefly present these different interpretations and the discussion they have given arise to. It is hoped that a better understanding of a central issue in the history of Western philosophy will suggest points of contact and comparisons with relevant counterparts Eastern philosophy.

References

Apel, K.-O. (2006) "Speculative-Hermeneutic Remarks on Hintikka's Performatory Interpretation of Descartes' Cogito, Ergo Sum", in R. Auxier and L.E. Hahn eds., *The Philosophy of Jaakko Hintikka* The Library of Living Philosophers, Volume XXX. La Salle: Open Court.

Hintikka, J. (1962) "Cogito, ergo sum: Inference or Performance?", *The Philosophical Review* 71, no. 1, (1962): 3-32.