

# Commentary on "Towards a quantum Psychiatry: Hallucinations, Thought Insertion and DSM"

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## **Abstract**

Hallucinations and thought insertion are some of the more interesting phenomena encountered in mental illness. In his article in this issue of NeuroQuantology, Dr. Globus advances a novel mechanism based on quantum physics to explain these perplexing experiences. He develops and refines the ideas proposed by Umezawa and Vitiello and applies insights based on thermofield *quantum brain dynamics* to psychopathology. In an impressive ontological shift, he maps consciousness to the "tuning together" of water dipoles in the brain and their dissipative surroundings and reasons that psychotic phenomena may arise due the malfunction of this tuning. He further proposes a revision of the diagnostic classification system in psychiatry to utilize these insights. This commentary explores his ideas further and discusses some of the implications and limitations of his reasoning.

**Key words:** DSM, hallucinations, quantum psychiatry

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In his interesting and valuable paper, "Towards a quantum psychiatry: hallucinations, thought insertion and DSM", Gordon Globus (2010), aims to show that the prevailing wisdom about the baffling psychiatric phenomena is inadequate and a new approach based on quantum mechanical principles is likely to be much more desirable and logical.

Psychiatry is the medical specialty devoted to the study and treatment of mental disorders. The discipline of psychiatry deals with the abnormalities of thought process and behavior. Unlike behavior, it is difficult to study the subjective aspects of thought processes directly. One approach to this difficulty has been for psychiatrists to concern themselves only with objective aspects of mental life, what Carl Jaspers, one the founder of modern psychiatry, called

"performances" (Shepard, 1995). In another approach, psychiatry relies heavily on the introspective method developed by Husserl (Benjamin, 1998). This latter method tries to give a "scientific" description of the inner "psychic experience from outside" and is based on a variation of the dualistic methodology of Descartes and the Cartesian dimensionalizations of classical physics. This model presupposes the separation of body and psychological experiences and is limited in its usefulness.

Psychiatrists have been perplexed about many of the bizarre psychological phenomena, they encounter in their patients. The phenomena of hallucinations, passivity and thought insertion, withdrawal and broadcastings are particularly baffling. Sigmund Freud wrote: "Pathology has made us acquainted with a great number of states in which the boundary lines between the ego and the external world become uncertain or in which they are actually drawn incorrectly. There are cases in which parts of a person's own body, even portions of his own mental life - his perceptions, thoughts and feelings -

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appear alien to him and not belonging to his own ego (Freud, Civilization and its Discontent, 1930, p.3).

Consider the following example of thought insertion:

A 29-year-old housewife said, "I look out of the window and I think the garden looks nice and grass looks cool, but the thoughts of Eamonn Andrews come into my mind. There are no other thoughts there, only his.... He treats my mind like a screen and flashes his thoughts onto it like your flash in a picture" (Mellor, 1970).

Alternatively, take the following example of thought withdrawal:

A 22-year-old woman said, "I am thinking about my mother and suddenly thoughts are sucked out of my mind by a phrenological vacuum extractor and there is nothing in my mind, it is empty..." (Mellor, 1970)

There is no satisfactory explanation for phenomena like that in the deterministic model of psychiatry. One of the ways that has been tried to explain these is the 'separability hypotheses. The separability thesis states that our awareness of our own thoughts can come apart from our awareness of ourselves as the subjects in whom those thoughts occur. Thus, the patients may be introspectively aware of a thought, and yet mislocate that thought, i.e. not recognize that it is part of their own psychological history. In short, the patient's introspective judgments involve an error of misidentification. However, it is conceivable that anyone can make such a fundamental error in self-recognition; however, these phenomena are limited to a subset of clinical conditions (Stephens, 2000).

Ultimately, the question of auditory hallucinations leads to the debate about consciousness itself. As Globus points out, non-linear brain dynamics cannot fundamentally explain such a shift of conscious experience, because in this model ontological experience is based on predetermined states with no degrees of freedom. This model inherently does not accommodate any splitting.

Globus presents an innovative approach to explain the psychotic experiences of schizophrenia. The beauty of this approach is that it follows naturally from the principles of quantum mechanics. At the

very basic level, in terms of quantum mechanics, brain can be considered to comprise of a state vector, in a linear Hilbert space. All of the information, including the psychological complexities of human psychology, is theoretically embedded in the state vector. However, the information derived depends on the operators used. Thus, this paradigm supports the notion of splitting and uncertainty at a basic level.

In his paper, Globus, provides a rational basis for a marriage of psychiatry and NeuroQuantology and calls it a "quantum psychiatry". This unique approach is based on the theory of Quantum Thermofield Dynamics, originally proposed by Hiroomi Umezawa (Umezawa, 1995). Mari Jibu and Kunio Yasue later expanded on these ideas and developed the implications towards consciousness (Jibu and Yasue, 1995). As Globus points out, the basic idea is the application of QED to dissipative systems like the brain. This approach proposes the emergence of Nambu-Gladstone bosons because of symmetry breaking of water dipole fields. Umezawa developed a possible mechanism of memory storage and retrieval in terms of Nambu-Goldstone (N-G) bosons, called symmetrons. Symmetrons are N-G Bosons that retain the symmetry lost because of dissipative changes in the brain. "Different sensory orders break the symmetry in different ways while leaving their characteristic trace in symmetron condensates". This provides the basis for a memory trace.

Globus has aptly elaborated on the idea proposed by Vitiello (Vitiello, 1995) that quantum brain dynamics (QBD) allows dual ground state dual modes. He points out that in the case of a dissipative system like brain, system and heat bath are modes, which share the ground state. These modes are complex conjugates of each other, much like bra and ket vector spaces, and when combined these imaginary dualities assume a real unity. He correctly concludes that, "The unity of phenomenal consciousness is between-two". As Vitiello proposes, consciousness has an intrinsic duality as it can only be mapped to the "match' of these dual modes. This is in contrast with the approach taken by Umezawa, which traces consciousness to the emergence of N-G Bosons. Here Globus, introduces his

ingenious idea that because of its "between two" nature, consciousness can be assumed to have a self-tuning function. In this formulation, "A variety of factors — genetic, developmental, experiential — might contribute to the decoherent splitting of attunement in which the conscious state nonetheless remains unified". Of course, this ontological innovation opens at once the door to apply this hypothesis to complex mental phenomena such as psychotic experience.

The current understanding of etiology of psychiatric disorders is quite limited and not based on any unifying paradigm. This is reflected in Diagnostic and Statistical Manual of Psychiatric Disorders that is the most widely used system of classification in psychiatry. Globus' criticism of DSM is well founded. As he points out, DSM only describes various disorders in terms of co-occurring clusters of symptoms and does not provide any scheme of classification based on etiology. One might argue that in the words of Thomas Kuhn, psychiatry is still at the "pre-paradigm" state, therefore it is imperative to propose innovative etiological paradigms so that "one conceptual worldview is replaced by another" (Kuhn, 1970). In my opinion, this is what exactly Globus has done in proposing far-reaching and overly ambitious overhauling of DSM.

Globus has proposed that the traditional classification of psychiatric disorders into so-called "psychotic" and "neurotic" disorders be replaced by the disorders of disintegrated self-tuning and the disorders of malattunements respectively. Although this approach has inherent philosophical consistency, in my view there are several factors that need to be considered in much more detail.

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First of all, despite the intellectual satisfaction of this approach, it may be over simplistic. Even though there is certainly a possibility that malfunctions at the quantum level may influence complex psychopathology, there are a number of other factors, such as genetics, medical disorders, environment that influence development of psychopathology. A mechanism has to be proposed by which malfunction of tuning at quantum level can be a common pathway for all these processes. Secondly, the existing neurochemical models of mental disorders that may have some experimental validity, at least in the animal models, should be reconciled with this new approach. Thirdly and most interestingly, the question has to be answered why some people develop this self-tuning malfunction and others do not. In other words, with the same quantum state preparation, how does the probability wave collapse in two distant patterns and what variables, if any, account for that.

Despite its limitations, Globus' approach is refreshing, intellectually powerful and might provide a consistent explanation of psychic phenomena that have baffled philosophers from antiquity. However, like any scientific theory the most important test of its validity is the test of falsifiability. It would be important to conceptualize ways in which malformation of self-tuning can be induced in brain, perhaps at the sub-neuronal level. Although, existent technology precludes the direct validation of such a broad theory, it is nonetheless important to work out predictions that can potentially be tested.

In conclusion, I commend Dr. Globus for working out an innovative approach that is rich in possibilities and far reaching in its conclusions.