

Geometry and Algebra of the Mind's Universe

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Abstract: Time and space are universally regarded as the most fundamental determinants of human cognition. There are, however, states of mind in which time and space are perceived much differently from what characterizes our ordinary state of consciousness, and may even become irrelevant/non-existent. In the first part of my contribution, I will give a basic typology of the patterns of such non-ordinary spatio-temporal experiences. In the second part, I will outline the rudiments of a fairly comprehensive and mathematically well-underpinned classification of them. The model is based on the concept of so-called quadro-cubic Cremona transformations in a three-dimensional projective space [1–4] and features six qualitatively different types of the internal structure of time dimension and four types of that of space. As for time, the most pronounced are the ordinary “past-present-future,” “present-only” (“eternal/everlasting now”) and “no-present” (time “standing still”) patterns. Concerning space, the most elementary are the ordinary, i.e., “here-and-there,” mode and the “here-only” one (“omnipresence”). I will then show what the admissible combinations of temporal and spatial psycho-patterns are and give a rigorous algebraic geometrical classification of them. The predictive power of the model is illustrated by the phenomenon of psychological time-reversal and the experiential difference between time and space. The talk will end with a brief account of some epistemological/ontological questions stemming from the approach.

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[3] Saniga, M.: 2003, Geometry of Time and Dimensionality of Space, in R. Buccheri, M. Saniga and W. M. Stuckey (eds.), *The Nature of Time: Geometry, Physics & Perception (NATO Science Series II)*, Kluwer Academic Publishers, Dordrecht, pp. 131–143.

[4] Saniga, M.: 2005, A Geometrical Chart of Altered Temporality (and Spatiality), in R. Buccheri, A. C. Elitzur and M. Saniga (eds.), *Endophysics, Time, Quantum and the Subjective*, World Scientific, Singapore, pp. 245– 272.