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## Similarity of patterning in behavioral interactions and on DNA: T-Patterns and structured hierarchical clustering in time and space

Structural and functional self-similarity between different levels of organization of matter and life is here considered beginning with a quick look at the evolution of the universe under the influence of a small number of forces some of which pull things together while others push them apart creating a self-similar fractal distribution of matter all the way out to the largest known structures created during 13.7 billion years of hierarchical structured clustering. A pattern type, called T-pattern, is then described. It is a hierarchical and self-similar tree structure based on a single relation between its branches called a critical interval relationship and may be seen as repeated statistical pseudo-fractal objects characterized by statistically significant translation symmetry. Special purpose T-pattern detection and analysis algorithms using an evolution method have been developed and implemented in the THEMETM PC software (by M.S. Magnusson, ©PatternVision Ltd) and are presented with some results of their application to the analysis of behavior and interactions. Firstly, at relatively slow time scale of human and animal interactions for which they were initially developed, and then at the much faster scale of interactions within populations of neurons in living rats brains. With this background of self-similarity, strong structural and functional analogies between human behavioral patterns and DNA patterns such as genes, products of real-time interaction processes, are discussed with some new consideration of apparent analogies between the structures and functions of life in the cities of proteins (cell city) and human cities, especially regarding education and specialization including the particular case of religious education.

### Biography

Magnus S Magnusson is a Research Professor, completed his PhD in 1983 from the University of Copenhagen. He has created the T-pattern model and detection algorithms implemented in THEME. He has focused on real-time organization of behavior, co-directed a two-year DNA analysis project, published numerous papers and given invited talks at numerous conferences (including AIMS and IFNA) and universities in Europe, USA and Japan. He was a Deputy Director from 1983-1988, Anthropology Laboratory, Museum of Natural History, Paris. He was a Temporary Professor at the University of Paris. Since 1991, he is a Founder, Director of the Human Behavior Laboratory, University of Iceland. Since 1995, he is in collaboration between 24 universities based on "Magnusson's analytical model" initiated at the Sorbonne, Paris.

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