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Temporal and spatial T-patterns in behavior and DNA: Is the structure of DNA reflected in the structure of neuronal and human behavior?

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The concepts of hierarchy, self-similarity, recursion and fractals are illustrated and discussed highlighting the difference between structured clustering as opposed to simple “clumping” and repeated clusters vis-a-vis more abstract clusters. Also discussed is a distinction between fractal distributions and repeated fractal objects. Based on empirical studies, the structure of behavior and interactions is considered from this viewpoint and a particular pattern type, the so called T-pattern, having some of these characteristics is described but it may be considered a special kind of repeated hierarchical structured clusters or repeated statistical (flexible) pseudo fractal objects characterized by significant translation symmetry. The T-pattern model has allowed the detection of abundant complex structure, hidden both to the naked eye and to other available models in behavior and interactions from human interactions to complex multi-neuron interaction patterns in neuronal populations within living rat brains. The structure of DNA is then considered in terms of the above concepts as a repeated pattern of patterns with a number of hierarchical levels of structured but flexible, sub-patterns characteristic of T-patterns, suggesting that the temporal T-patterns of behavior are somehow reflections of the spatial structure of DNA and proteins. T-pattern Analysis (TPA) may thus be relevant for DNA and protein analysis as the first applications using THEME™ seem to indicate. The possibility is finally considered that two and three (possibly four) dimensional T-patterns may be relevant spatial-temporal models for behavior, DNA and (social) proteomics.

Biography

Magnus S Magnusson completed his PhD in 1983 from University of Copenhagen. He is a Research Professor and creator of the T-system model and algorithms implemented in Theme™. He focuses on real-time organization of behavior, co-directed a two-year DNA analysis project, and published numerous papers. He gave invited talks at numerous conferences (including AIMS, IFNA, Neurotalk, Proteomics) and Universities in Europe, USA and Japan. He is Deputy Director between 1983 and 1988, Anthropology Laboratory, Museum of Natural History, Paris. He is a repeated invited Professor at Universities of Paris (V, VIII, XIII). Since 1991, he is Founder and Director of the Human Behavior Laboratory, University of Iceland. Since 1995, he focused on collaboration between 24 Universities based on “Magnusson’s Analytical Model” initiated at the Sorbonne, Paris.

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