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T-patterns and self-similarity from protein cities to the only large-brain mass-societies: From naked apes to string-controlled citizens

This presentation concerns spatial and temporal self-similarity across >9 orders of magnitude, implicating a particular type of hierarchical self-similar pattern, called T-pattern, a natural (pseudo) fractal, recurring with statistically significant translation symmetry. While the self-similarity in question must have evolved from simpler to more complex, it is presented in the order discovered within a primarily ethological (biology of behavior) project concerning social interaction and organization in social insects and primates, including humans. Beginning in the 1970's, it was partly inspired by the work of Lorenz, Von Frisch and Tinbergen for which they shared a Nobel Prize in Medicine in 1973. The smallest animals concerned were social insects and there was no implication of self-similarity. The main methodological focus of the present project has been on developing pattern definitions and detection tools. This resulted in the T-pattern, with corresponding detection algorithms and software, and their abundant detection, among others, in different kinds of human (inter-brain) interactions and later in neuronal interactions in living brains, thus showing T-patterned self-similarity of temporal interaction structure within and between brains. Finally, unexpected spatial T-patterning in the molecular strings of DNA and proteins was noticed and consequently the realization of self-similarity in social organization, based on T-patterned (external memory) strings, more durable than the citizens, in the mass-societies of proteins and of humans – the only large-brain mass-societies. Different from the mass-societies of insects (hives) and of cells (bodies), those of, respectively, protein and human mass-societies relying extensively on external T-patterned strings, respectively, DNA and the very recent strings, called texts, including those thoroughly standardized, copied, distributed, promoted and enforced, called legal or holy texts. With human and protein citizens specialized on the basis of durable external T-patterned strings and with some citizens, for example, moving (even walking) along tracks and doing meaningful work, a new definition of what is alive seems justified. Thus, proteomics may provide new insights and ideas for a bio-social science and vice-versa.

Biography

Magnus S Magnusson is a Research Professor in the University of Iceland. He has completed his PhD in 1983 from the University of Copenhagen. He is the Co-director of a DNA analysis project. He has numerous papers and invited talks at international mathematical, neuroscience, proteomics, bioinformatics and science of religion conferences and at leading universities in Europe, USA and Japan. He was the Deputy Director (1983-1988) in the Museum of Mankind, Museum of Natural History, Paris. Then, he was repeatedly invited as temporary Professor in Psychology and Ethology (biology of behavior) at the University of Paris (V, VIII & XIII). He is the Founder and Director of the Human Behavior Laboratory, University of Iceland. He formally collaborated with 32 European and American universities based on "Magnusson's analytical model" initiated at University René Descartes Paris V, Sorbonne, in 1995.

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