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SELF-SIMILARITY ACROSS VAST SPANS OF SIZE AND TIME: T-PATTERNS AND MASS-SOCIETIES IN PROTEINS AND HUMANS

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With its roots in studies of social organization and communication in social insects and primates, this talk is about similarities and especially two kinds of self-similarity. The first concerns a type of pattern, named T-pattern, originating in ethological (biology of human behavior) work in the 70's regarding children's behavior and interactions when video recording and access to computers was becoming increasingly available; also, while behavioral and statistical methods of analysis were from earlier times of scarce computational power. The T-pattern and the corresponding dedicated T-pattern detection algorithm and software, THEMETM, was an answer to this situation around 1980s. It has since become clear that the T-pattern can be seen as a type of statistical pseudo or natural fractal. However, recently the whole universe out to its largest known structures has been shown to have a fractal and thus self-similar distribution. Applying T-pattern detection to many kinds of interactions in humans and animals and then between neurons in neuronal networks in rat brains showed an abundance of this kind of patterning at extremely different scales of size and time. When shifting to DNA analysis, the same kind of patterning is encountered and is the direct basis for, among other, motor proteins, behaving and working in "Cell Cities", that is, proteins mass-societies, while human societies are the only, and biologically very recent, big-brain mass-societies. Could the detection and study of proteins thus provide keys to the understanding of human social phenomena, possibly including religion?

Biography

Magnus S Magnusson is a Research Professor of University of Iceland. He completed his PhD from the University of Copenhagen. He is the author of the T-pattern model and the corresponding detection algorithms in the THEMETM (PatternVision). He has focused on real-time organization of behavior, co-directed DNA analysis, published numerous papers and given invited talks and keynotes at international conferences in ethology, psychology, neuroscience, mathematical sciences, science of religion, proteomics and mass spectrometry, and at universities in Europe, USA and Japan. He has served as Associate Professor and Deputy Director (1983-1988), Anthropology Laboratory, Museum of Mankind, Museum of Natural History, Paris. He has been a repeatedly invited Professor in Psychology and Ethology (the biology of behavior) at the University of Paris, V, VIII and XIII. Since 1991, he has been the Founder and Director of the Human Behavior Laboratory (hbl.hi.is), University of Iceland. Since 1995, he is in collaboration between 24 universities on Methodology for the Analysis of Social Interaction (MASI) initiated at the Sorbonne, Paris based on â€œ Magnussonâ€™s analytical modelâ€

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