



COMPLEXiTY
research seminar

***How interaction between co-evolving agents
shape temporal mode and structure of the
evolving interaction network.***

Prof Henrik Jeldtoft Jensen

Wednesday 9 June 2010

14:30-17:00 at the LSE

Understanding systems level behaviour of many complex interacting agents is very challenging for various reasons: the interacting components can lead to hierarchical structures with different causations at different levels. We use the Tangled Nature model to discuss the co-evolutionary aspects connecting the microscopic level of the individual to the macroscopic systems level. At the microscopic level the individual agent may undergo evolutionary changes due to “mutations of strategies”. The micro-dynamics always run at a constant rate. Nevertheless, the systems level dynamics exhibit a completely different type of mode characterised by intermittent abrupt dynamics where major upheavals keep throwing the system between meta-stable configurations. These dramatic transitions are described by a log-Poisson time statistics. The long time effect is a collectively adapted network.

We discuss how the systems level adaptive intermittent search is related to an increase in the mutual information content describing the core of the population, while, at the same time, the adaptive search is conducted through

an overall network of agents described by a decreasing degree of correlation measured in terms of mutual information. We further more relate the systems level adaptation to the functional properties of the microscopic duplication probability.

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Please contact Rahoul Masrani at complexitygroup@lse.ac.uk if you wish to attend. The seminar is free but places are limited. Details of this event and the others in the Series are available on our website, www.lse.ac.uk/complexity