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More than two equally probable variants of signal in Kauffman networks as an important overlooked case, negative feedbacks allow life in chaos

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There are three main aims of this paper. 1- I explain reasons why I await life to lie significantly deeper in chaos than Kauffman approach does, however still in boundary area near `the edge of chaos and order'. The role of negative feedbacks in stability of living objects is main of those reasons. In Kauffman's approach regulation using negative feedbacks is not considered sufficiently, e.g. in gene regulatory model based on Boolean networks, which indicates therefore not proper source of stability. Large damage avalanche is available only in chaotic phase. It models death in all living objects necessary for Darwinian elimination. It is the first step of my approach leading to structural tendencies which are effects of adaptive evolution of dynamic complex (maturely chaotic) networks. 2- Introduction of s>=2 equally probable variants of signal (state of node in Kauffman network) as interpretively based new statistical mechanism (RSN) instead of the bias p - probability of one of signal variants used in RBN family and RNS. It is also different than RWN model. For this mechanism which can be treated as very frequent, ordered phase occurs only in exceptional cases but for this approach the chaotic phase is investigated. Annealed approximation expectations and simulations of damage spreading for different network types (similar to CRBN, FSRBN and EFRBN but with s>=2) are described. Degree of order in chaotic phase in dependency of network parameters and type is discussed. By using such order life evolve. 3- A simplified algorithm called `reversed-annealed' for statistical simulation of damage spreading is described. It is used for simulations presented in this and next papers describing my approach.

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