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THE SIMPLE MODEL OF A LIVING OBJECT AS AN OUTSIDE STATE OF STATISTICAL STABLE EQUILIBRIUM, THE SMALL CHANGE TENDENCY IN ADAPTIVE EVOLUTION

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Abstract. We propose an extremely simple model of object exposed to random adaptive evolution. It is a basic element of more advanced model of adaptive evolution of functioning object with structure leading to structural tendencies described in other papers. It is useful for intuitive connection of living object evolution and basic abstract mathematical ideas like information, entropy and probability. We identify in this model an abiotic state of equilibrium as a state of entropy maximum and information minimum. Next, we follow the effects of adaptive condition: collection of "purpose" information in object, moving an object out of the state of abiotic equilibrium and not yet adequately known and understood the "small change tendency" with deep implications for ontogeny evolution (base of regularities) and understanding of evolving objects (a natural identity criterion).

Keywords. Kauffman network; Boolean network; damage spreading; chaos; adaptive system.

1 Introduction

1.1 The Purpose and Topic of Paper

In this article, we propose and analyze an extremely simple model of object exposed to random adaptive evolution. We investigate the role of adaptive condition, which corresponds with the definition of life based on Darwinian mechanism like in [17, 18]. This model is useful for creating a connection of intuition concerned with living object evolution and basic abstract mathematical ideas like *information, entropy* and *probability.* Our model [5] is much simpler than the one developed by Chaitin in [1] where algorithmic information theory[2] is used. The most useful and interesting notion is 'information' which corresponds to the 'fundamental notion - *biological information*' [16].