

The work discusses questions about the nature of the human mind, the process of language acquisition and the cognitive development in general and presents results of computational modelling of one of the seminal developmentally-psycholinguistic phenomena – segmentation of continuous speech flow on the basis of phonotactic and prosodic cues.

In the general part of the work there is at first briefly introduced the philosophical topic of mind-body problem and then there is described intellectual, historical and cognitively anthropological background of the computational-representational paradigm which is in the contemporary cognitive science the most prevailing view of the human mind treating the mental life as a kind of computation in the sense of manipulation and transformation of syntactic structures. There are in detail introduced two competing interpretations of this statement in the form of physical symbol system hypothesis and connectionism which differ primarily about the opinion on how far from the level of ordinary thought and concepts we should look for the formal rules specifying mental computation. There are also mentioned two alternative theories in the form of dynamic (or embodied) cognitive science and theory of distributed cognition according to which the nature of intelligence doesn't lie (only) in the manipulation of complex inner representations of the outer world but mainly in dynamical interaction between larger number of various factors occurring inside and outside the organism.

What follows is a short introduction to the theory of dynamical systems with explanation of concepts like phase space, attractor, bifurcation and the range of other concepts and tools which are used for description of dynamical systems' behavior, including the behavior of the range of various types of artificial neural networks.