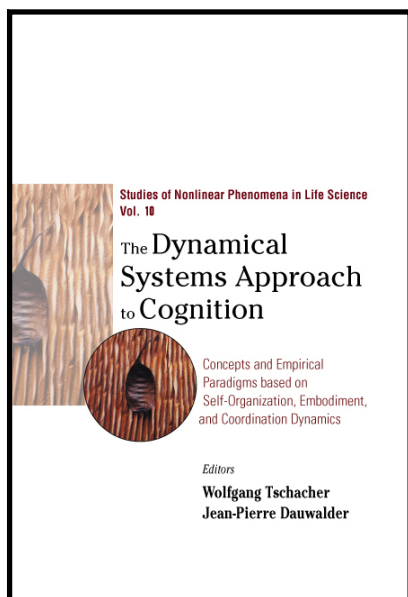


Studies of Nonlinear Phenomena in Life Science – Vol. 10

THE DYNAMICAL SYSTEMS APPROACH TO COGNITION

Concepts and Empirical Paradigms Based on Self-Organization,
Embodiment, and Coordination Dynamics



edited by

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The shared platform of the articles collected in this volume is used to advocate a dynamical systems approach to cognition. It is argued that recent developments in cognitive science towards an account of embodiment, together with the general approach of complexity theory and dynamics, have a major impact on behavioral and cognitive science. The book points out that there are two domains that follow naturally from the stance of embodiment: first, coordination dynamics is an established empirical paradigm that is best able to aid the approach; second, the obvious goal-directedness of intelligent action (i.e., intentionality) is nicely addressed in the framework of the dynamical synergetic approach.

Contents: Intelligent Behavior: A Synergetic View (*H Haken*); Grounded in the World: Developmental Origins of the Embodied Mind (*E Thelen*); Cognitive Coordination Dynamics (*S Kelso*); What is Coordinated in Bimanual Coordination? (*F Mechsner & W Prinz*); Cognition in Action: The Interplay of Attention and Bimanual Coordination Dynamics (*JJ Temprado*); A Synergetic Approach to Describe the Stability and Variability of Motor Behavior (*K Witte et al.*); The Role of Synchronization in Perception-Action (*T-C Chan et al.*); A Mean-Field Approach to Self-Organization in Spatially Extended Perception-Action and Psychological Systems (*T Frank & P J Beek*); Self-Organizing Systems Show Apparent Intentionality (*W Tschacher et al.*); The Embodiment of Intentionality (*S Jordan*); Cognitive Science, Representations and Dynamical Systems Theory (*P Haselager*); Self-Steered Self-Organization (*F Keijzer*); Brain Dynamics: Methodological Issues and Applications in Psychiatric and Neurologic Diseases (*L Fezard*); SIRN (Synergetic Inter-Representation Networks), Artifacts and Snow's Two Cultures (*J Portugali*); Dynamical Systems Theory: Application to Pedagogy (*J Abraham*).

Readership: Psychologists, cognitive scientists, computer scientists, biologists and philosophers.

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