

Preface

This work is about understanding and influencing emergence. Ideas presented are relevant to a variety of fields, including matter, the emergence of consciousness, and the emergence of human cultures. Following the tradition introduced by the great systems scientist Ludwig von Bertalanffy, this work is intended to make a contribution to a “General Systems Theory,” which will be valid for complex systems in general.

Since such a general system theory potentially targets readers from a variety of different disciplines, the theory is presented in a way that requires no particular, prior knowledge about systems, complexity, or even emergence. The theory builds up piece by piece, building on a common understanding of complex systems that I review in the Introduction. Thus, the chapters of this work should probably be read sequentially and in their entirety, not selectively.

This work aims to trigger change in the established ways of thinking about how novelty comes into existence and about longstanding convictions of how the physical world is closed. These convictions are denying the influence of conscious thought or cultural rules on humanity’s shaping of the material world.

A further aim of this work is to bring the concept of so-called strong emergence into the applied sciences, such as urban planning. According to strong emergence, non-material qualities, such as consciousness and cultural rules, exert influence on the material world. If what emerges always comes with something new, i.e., it cannot be predicted, forecasting and planning become challenges. My aim is to articulate how the purposive activity of conscious man may nevertheless effectively influence the course of events.

The focus of this work is on the following:

1. Sketching a theory of emergence as a property of complex systems.
2. Demonstrating how the application of such a theory may yield potentially helpful insights in the exemplary case of urban development.

The theory brings together a variety of concepts of systems and emergence theories. Ways to influence emergence of novelty are deduced, as is a case-study

approach that is at least suited to urban systems. An urban system is chosen to demonstrate how the theory can be applied. Thus, this work seeks to explore new ways to interpret how the world works, and it strives to present ways to understand and influence the course of events.

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Systems as well as Case Studies in Urban Systems

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