

EMERGENT INFORMATION

A Unified Theory of Information Framework

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by Wolfgang Hofkirchner



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EMERGENT INFORMATION

A Unified Theory of Information Framework

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Preface

Fifteen years have passed since Peter Fleissner and I published an article in *BioSystems* titled “Emergent Information. Towards a unified information theory” [Fleissner et al. 1996]. At that time we had completed a research project on the genesis of information structures in which we examined what we considered the fundamental concept of informatics in co-operation with Klaus Fuchs-Kittowski. In the same year, we hosted the second conference on the Foundations of Information Science at the Vienna University of Technology. The motto we proposed was “The Quest for a Unifying Theory of Information” (see the proceedings [Hofkirchner 1999]). Our contribution was an appeal to the scientific community to combine efforts to overcome what we deemed an unsatisfying state of the art.

I then delved deeper into the issue and published a monograph in German in [2002]. This was prompted by the realisation that attempts to hypothesise or theorise about information in a unifying manner was not mainstream and that many scientists disbelieved in the feasibility of a single generic concept of information. We had already realised that a Unified Theory of Information (UTI) would need a unified theory of self-organisation too. I had the opportunity to contribute, together with John Collier, Rainer E. Zimmermann and others, to developing positions of an “Evolutionary Systems Theory” (EST) in another research project on “Human Strategies in Complexity” that ran from 2001 to 2004. Zimmermann instigated my ideas on the philosophical underpinning of UTI and EST, which I called Praxio-Onto-Epistemology (POE).

During my stay at the Paris-Lodron University of Salzburg from 2004 to 2010 I began to elaborate my positions in UTI, EST and POE. I owe

thanks to my working group, all of who have become members of the UTI Research Group I had founded in 2003, and to numerous students. This book wrap-ups these elaborations. I found time to write this book thanks to a sabbatical granted by the University of Salzburg, a stay as Visiting Professor at the University of León in fall 2009 as well as a visit to the Open University of Catalonia in Barcelona in spring 2010. The book draws upon, but is a considerable extension and revision of, previous publications [2009, 2010a]. Intensive discussions with José María Díaz Nafriá and Francisco Salto Alemany helped me clarify and rework several ideas. I am grateful to Michael Stachowitsch for polishing the English of the manuscript.

The present book focuses more on clarifying my own approach than on discussing similar or divergent ones. I only touched upon the literature with which I could easily relate. Besides the scholars already mentioned, colleagues who influenced my approach the most include Edgar Morin, Ervin László, Werner Ebeling, Klaus Kornwachs, Klaus Haefner, Tom Stonier, Alicia Juarrero, Edwina Taborsky, Søren Brier, Claus Emmeche, and Bob Logan, to name but a few.

I chose the title “Emergent Information” to highlight the continuity with my earlier efforts. “Emergent Information” points to the fact that the information concept is still emerging in society and in the various disciplines. It also alludes to the sciences-of-complexity information concept, which I present to link information to self-organisation such that emergence is a *sine qua non* for information to be generated.

The stage has changed since 1996. In 2010 the first-ever international conference “Towards a New Science of Information” took place in Beijing. My approach is a specific proposal about what the theoretical foundations of a new science of information could look like.

Wolfgang Hofkirchner, Vienna, March 2011

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