

<b>Title</b>	<b>Information and Self-Organization</b>
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Brief Introduction	<p style="text-align: center;"><b>Preface to the Third Edition</b></p> <p>The widespread interest this book has found among professors, scientists and students working in a variety of fields has made a new edition necessary. I have used this opportunity to add three new chapters on recent developments. One of the most fascinating fields of modern science is cognitive science which has become a meeting place of many disciplines ranging from mathematics over physics and computer science to psychology. Here, one of the important links between these fields is the concept of information which, however, appears in various disguises, be it as Shannon information or as semantic information (or as something still different). So far, meaning seemed to be exorcised from Shannon information, whereas meaning plays a central role in semantic (or as it is sometimes called "pragmatic") information. In the new chapter 13 it will be shown, however, that there is an important interplay between Shannon and semantic information and that, in particular, the latter plays a decisive role in the fixation of Shannon information and, in cognitive processes, allows a drastic reduction of that information.</p> <p>A second, equally fascinating and rapidly developing field for mathematicians, computer scientists and physicists is quantum information and quantum computation. The inclusion of these topics is a must for any modern treatise dealing with information. It becomes more and more evident that the abstract concept of information is inseparably tied up with its realizations in the physical world. I have taken care of these fundamental developments in two new chapters, 15 and 16, where I have tried not to get lost in too many mathematical and physical details. In this way I hope that the reader can get an easy access to these fields that carry great potentialities for future research and applications.</p> <p>I thank Prof. Juval Portugali for his stimulating collaboration on the concepts of information. My thanks go to my secretary, Ms. Petra Mayer, for her very efficient typing (or rather typesetting) of the additional chapters. I thank Dr. Christian Caron of Springer company for the excellent cooperation.</p> <p>Stuttgart, October 2005 <span style="float: right;">Hermann Haken</span></p>