

Foreword

The Centre for Advanced Study (CAS) in Oslo has two overriding long-term objectives. The first is to enhance the quality of Norwegian basic (fundamental) research to the highest international level and standard. Here the call is for specialization and penetration in depth – to benefit basic disciplinary science. The other is to promote the same quality and achieve the same level of excellence when it comes to interdisciplinary research. Here the call is for wholeness and integration in breadth as well as in depth – to benefit complex system science. The two objectives relate equally to the humanities, the social sciences and the natural sciences and both are supposed to find expression within and between the three fields of academe.

This book is the result of a series of weekly luncheon seminars in which the fellows of the Centre have made presentations of their respective specialties with the aim of fostering a multidisciplinary dialogue between the groups and across disciplinary delineations. Three scientific groups were in action throughout the academic year of 2004/2005. The humanists addressed the relationship between *Linguistic Theory and Grammatical Change*, the social scientists aimed at developing a more complex understanding of *Attention-Deficit/Hyperactivity Disorder (ADHD) – from Genes to Therapy*, whereas the group of natural scientists were concerned with *Turbulence in Plasmas and Fluids*. At the outset of the discussions, it seemed as if the humanists and the social scientists had a common denominator in their joint focus on language, whereas the physics group, on the face of it, had no obvious professional connection to the others. The former assumption proved right, the latter proved wrong. The *theory of turbulence* – the very essence of the work of the physics group – at an early stage caught the interest of some of the humanists and the social scientists who wanted to test if the theory of turbulence was discipline-straddling, providing a novel and supplementary approach to the study of language change in linguistics and information processing in the neurosciences. How these expectations turned out upon application is discussed in *Section II: The Theory of Turbulence in Physics, Linguistics and Psychology*. Thus, the luncheon seminar turned out – as it did in 2003/2004 – to be instrumental in creating a feeling of both social and professional community between the groups. At the same time, it produced a multidisciplinary atmosphere of utility for the clarification of interdisciplinary concepts in theory-building within and between the groups.

To provide an overall integrative perspective to the book, and in particular to Section II, the editor has contributed an article on *Complex System Science and Discipline-Straddling Theories*, suggesting, among other things, that the rich stock of discipline-based theories may unleash some unrealized interdisciplinary potential through wider applications. Section II deals with that.

We have two hopes for the book. First, to extend the internal multi- and interdisciplinary discussions of the CAS to a wider readership – nationally as well as internationally – and to ease communication between readers and authors by providing the relevant e-mail addresses. Second, and closely related to the first point, we want to break down the alleged “ivory tower of basic fundamental research” by dispersion of a book that we hope will appeal to readers beyond the realm of pure experts.

Happy Reading!

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Willy Østreng,
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