

## Preface

Developmental processes are not only smooth and monotonous, but can also be characterized by phenomena such as discontinuities, transitions, instabilities, and regressions, all characteristic of non-linear dynamical processes. The subject of the Colloquium was the non-linear character of development and the possible mechanisms responsible for this non-linearity.

In the Netherlands, different groups from three universities worked together in applying the theory of dynamical systems to developmental transitions in early eye-hand coordination, infant emotions, infant attention and language. A fifth project was devoted to the development of statistical analysis techniques, especially for phase-transitions. These projects were the nucleus of the colloquium together with the projects of three academy research fellows on perceptual-motor development, motor development and cognitive development and neural networks. All these projects used similar research designs and tried to contribute to fundamental theory building with respect to developmental transition based on non-linear dynamic systems.

The Colloquium was structured as follows: Firstly, the theoretical aspects and concepts from the different non-linear theories (synergetics, chaos, catastrophe theory) have been discussed, especially those which found their way into the study of development. Secondly, the modeling process itself and the possibilities to test the models empirically were focussed on. The Colloquium ended with a discussion initiated by one of the invited guests.

We wish to acknowledge the Royal Netherlands Academy of Arts and Sciences for giving us the opportunity to bring together foreign and Dutch experts to report and reflect on the theme Non-linear analyses of developmental processes. This international Colloquium took place in Amsterdam at the Academy on 29, 30 and 31 January 1997. We would also like to express our gratitude to the co-sponsor: the Institute for Fundamental and Clinical Human Movement Sciences.

Finally, the colloquium would not have been such a success without the active participation of the key speakers and the other participants. Also, we would like to thank the reviewers of the papers published in this book, additional to the initiators of the meeting: Peter Beek, Reint Geuze, Jan Hoeksma, Brian Hopkins, Bernard Netelenbos and Richard Ridderinkhof. Finally, the Colloquium would not have

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Initiators of the Colloquium