Preface

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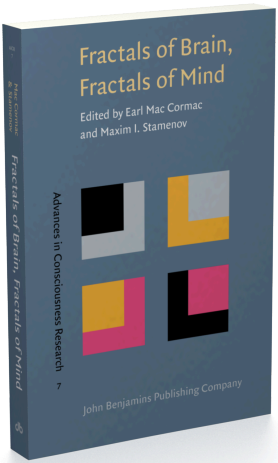

Pages ix–x of
Fractals of Brain, Fractals of Mind: In search of a symmetry bond
Edited by Earl Mac Cormac and Maxim I. Stamenov
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Preface

Leibniz believed that most of the world's problems could be solved by mathematical calculations. We have captured and continued that intuition in our presumption that fractals can play a major role in explaining neuronal processes that generate mental activity: hence the title of this volume, *Fractals of Brain, Fractals of Mind*. The self-organizing activity of neurons reacting to the external world through perceptions and actions produces fractal and fractal-like patterns, many of which are symmetrical. Our investigations and those of the authors of the chapters in this volume have not progressed far enough to allow us either to claim necessity for symmetry in these relationships because we do not yet comprehend how symmetry operates in these fractal-like patterns. Again, our intuitions suggest that it probably occupies a necessary role in this self-organizing behavior. Only in the future will this and other questions be answered.

Conversations for this volume began when the editors first met in Berkeley after a year of correspondence. Since then, the discussions have continued and resulted in visits not only between the editors but also between their families. Having not only the editors but also the authors located in several different continents has given this project an extremely interesting and pleasant intercultural aspect. With one editor located in Bulgaria and the other in the United States, except for visits, most of the contact has been by electronic mail and we must express our gratitude to the electronic age which makes this possible. Similarly, we could have never operated as smoothly with our widespread authors without this technological advantage. Individuals, however, operate the machines whether they be e-mail, fax, or computer and we must express our appreciation to several without whom this volume might have never been published. In the United States, Bonita Kuki, secretary to the PET facility of the Duke University Medical Center provided the backbone of organization, typed sections and coordinated the dispatch and revision of chapters. Thomas Hawk, Associate in Research of the PET facility assisted in the production of a number of figures. In Bulgaria, Kiril Simov, a computer scientist at the Linguistic Modeling Laboratory (Bulgarian Academy of Sciences), helped with

the preparation of the camera ready copy of the whole manuscript and with the compilation of the Subject Index. Professor Mac Cormac wishes to thank the J.B. Fuqua Foundation of Atlanta, Georgia for a generous grant allowing him to begin the cognitive studies with Positron Emission Tomography (PET) described in his chapter in this volume. Part of the preparation of the volume was undertaken during the Visiting Fellowship of Maxim Stamenov at the Center for Advanced Studies in the Humanities, the University of Edinburgh, in 1993.

Finally, we express our appreciation to our families, especially our wives, Nancy H. Mac Cormac and Reneta Kileva-Stamenova, for their support and patience during the production of this book. It is to Nancy and Reneta that we dedicate this volume.