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A COMPLEX SYSTEMS VIEW ON THE VISUAL ARTS

This book presents a comprehensive and unexpected approach to the visual arts, grounded in the theories of complexity and dynamical systems. Paul van Geert shows how complexity and dynamical systems theories, originally developed in mathematics and physics, offer a novel perspective for viewing the visual arts. This book covers diverse aspects of visual arts as a practice, profession, and historical framework. A key focus lies in the unique characteristics of complex systems: feedback loops that bridge short- to long-term temporal scales and self-organize into creative emergent properties. These dynamics can be applied to a wide range of topics. By synthesizing theory and empirical evidence from diverse fields, including philosophy, psychology, sociology, art history, and economics, this pioneering work demonstrates the utility of simulation models in deciphering a surprisingly wide range of phenomena, such as artistic (super)stardom and shifts within art historical paradigms.

PAUL VAN GEERT is emeritus professor of developmental psychology at the University of Groningen. He is a pioneer in the application of the complex dynamic systems approach to a broad range of developmental and educational areas from cognitive development to learning in schools. As an artist, his practice arises out of and is inseparable from van Geert's immediate community and surroundings, reflecting the people, materials and site of its creation.

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Preface

J'ai deux amours, sang Josephine Baker, the scantily clad icon of the Folies Bergère revue in Paris in the 1920s and, many decades later, the civil rights activist and heroine of the French Resistance, portrayed by artists as diverse as Kees van Dongen and Alexander Calder. According to her songlines, Ms. Baker's *deux-amours* were her homeland and Paris. Mine (if I confine myself to just one existential level) have always been the visual arts and science (www.paulvangeert.nl/).

I made my first oil paintings in 1966, in the midst of a typical Eriksonian crisis of commitment about what to choose in terms of my future professional identity: to attend an art academy or to go to university and study either physics, preferably geology, or psychology and education. For some, probably very trivial reason, the conflict was settled in favor of the latter possibility. In anticipation of the terminology used in the rest of this book, I might say that I was a typical example of an adolescent metastable attractor landscape that eventually evolved into a bistable art-science attractor that has remained ever since. During the Renaissance, this would have been an ideal complementarity, two sides of the same coin, but in my case, and in the case of many others, I am afraid, the opposition was never resolved. The present book, however, is intended to try to bring the two closer together.

In my scientific research of human development, I have always explored the field's theoretical fringes, trying to focus on the highest abstract generalization possible, which I found, in the late 1980s, in the form of complex dynamic systems theory. The theory provided a key to understanding the similarities between very different developmental processes, such as language, cognition, and education, and to unifying them with processes taking place in areas far beyond psychology. All of this culminated, after my retirement in 2015, in a book I wrote with Naomi de Ruiter, *Toward a Process Approach in Psychology: Stepping into Heraclitus' River*, published by Cambridge University Press in 2022.

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Interestingly, this very abstract theory, which originated in physics and mathematics, taught me that in order to understand the general principles of change and development, one should focus on very concrete, case-specific processes, where cases can be individual persons, specific families, or school classes. That is, general knowledge comes from focusing on the unique.

Since my early beginnings, I have never stopped painting, and my subjects have always been chosen from my private inner circle – my family, friends, and close colleagues – in the form of life-size, full-length portraits mounted on freestanding supports on wheels that could easily be moved around rooms large enough to accommodate them. I painted them on materials that I found in my direct neighborhood (www.paulvangeert.nl/alle_schilderijen_pages/index.html). I believe that, in a paradoxical sense, they represent general existential themes of relatedness and belonging, precisely because they are portraits of very specific people. To these portraits, I usually add the slightly absurdist details that are so characteristic of the art of my country of origin, Belgium, the cradle of the artistic comic strip (Hergé's Tintin or André Franquin's Gaston Lagaffe, for instance), the masks of James Ensor and the mocking ambiguities of René Magritte. Both artists were sedate middle-class men who were very attached to their daily and domestic comforts in spite of the totally destabilizing worlds they created with their arts.

Meanwhile, art and science remained two separate worlds for me until, after the Heraclitus book that I coauthored, I began to think about how complex dynamic systems theory might shed some light on the subject that had fascinated me for most of my life, the visual arts in general, and my own choice to keep my art a private matter all along. A colleague from my former department, Ralf Cox, had started a project on the experience of art, using methods and theory from complexity science. We collaborated with Wolfgang Tschacher from Bern, an expert in complex dynamic systems applications to psychotherapy and psychopathology, who had already applied this theory to the dynamics of art, resulting in a joint article on the experience of art from a complex systems perspective. Since my initial outline was far too complicated for even the most comprehensive article, I contacted Rowan Groat at Cambridge University Press, who was immediately enthusiastic about the book project and sent it out to three anonymous reviewers, whom I like to thank for their very useful suggestions. Rowan Groat was succeeded by Stephen Acerra and Neema Jayasinghe, and I would like to thank them all for their support and encouragement.

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I also thank my son, David van Geert, for his patient and meticulous work on the Bibliography, checking all the details, including finding almost untraceable DOIs.

As for my wife, Leen Waegeman, who appears in so many of my paintings that reflect the processes of change as well as constancy in the life span, I can only repeat what I wrote in the Heraclitus book: I thank her for her support during the writing of this book, against the backdrop of more than 50 years of married life and its ecology of comfortable coexistence, where the writing of a book "goes with the flow" of retirement. "Support" is an example of themes that I also use in the present book on the visual arts, namely enactment as well as complementarity. It is provided in deeds rather than words; it feels natural and obvious as well as deliberately given and maintained. Her rather down-to-earth and sobering view of the importance of abstract theorizing is a welcome preventive medicine against taking my theoretical side too seriously.

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