

ENTROPY OF MIND AND NEGATIVE ENTROPY

A Cognitive and Complex Approach to Schizophrenia and its Therapy

TULLIO SCRIMALI

ROUTLEDGE


ENTROPY OF MIND
AND NEGATIVE ENTROPY



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

ENTROPY OF MIND AND NEGATIVE ENTROPY

A Cognitive and Complex Approach
to Schizophrenia and its Therapy

Tullio Scrimali

Preface by
Arthur Freeman

 **Routledge**
Taylor & Francis Group
LONDON AND NEW YORK



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

Κτῆμα τε ἐς αἰεὶ μαλλον
ἢ ἀγώνισμα ἐς το παραχρήμα
ἀκούειν ξύγκενταν.

Thucydides, *The Peloponnesian War*, 5th century b.C.

This book is dedicated to Giulia and Susanna,
fantastic daughters, the continuation of life.

For them, a particular gift, a

κτῆμα ἐς αἰεὶ

Giulia and Susanna know what this means.

To the readers who have not read Thucydides,
(or who don't remember it), I leave this little curiosity,
referring them to *The Peloponnesian War*
(Thucydides, 5th century b.C., English edition, 1998).

Published 2008 by Karnac Books Ltd.

Published 2018 by Routledge

2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

711 Third Avenue, New York, NY 10017, USA

Routledge is an imprint of the Taylor & Francis Group, an informa business

Copyright © 2006 by FrancoAngeli s.r.l., Milano, Italy.

The rights of the editors and contributors to be identified as the authors of this work have been asserted in accordance with §§ 77 and 78 of the Copyright Design and Patents Act 1988.

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

Notice:

Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

British Library Cataloguing in Publication Data

A C.I.P. for this book is available from the British Library

ISBN: 9781855756618 (pbk)

Dtp & copyediting by gabrielecrobbeddu.com

CONTENTS

ABOUT THE AUTHOR xiii

ACKNOWLEDGEMENTS xv

Preface

by Arthur Freeman 1

Prologue

The Salt Works, Negentropic Machine 5

Introduction

9

PART ONE

MIND, BRAIN, ENTROPY

CHAPTER ONE

Cognitive Therapy and Schizophrenia: From Human
Information Processing to the Logic of Complex Systems 19

CHAPTER TWO

On the Trail of the Entropy of Mind 57

1. Introduction 57

2. Biological Markers of Schizophrenia 58

2.1. Smooth Pursuit Eye Movement 60

2.2. Evoked Electroencephalographic Potentials 60

2.3. Quantitative Electroencephalography 62

2.4. Electrodermal Activity 63

3. Clinical Psychophysiology of Schizophrenia	68
3.1. Psychophysiological Profiles and Prognosis	69
3.2. Evaluation of Treatment Response	70
3.3. Monitoring Warning Signs of Relapse	71
3.4. Psychophysiological Parameters of Expressed Emotion	75
3.5. Biofeedback	78

PART TWO

ENTROPY OF MIND OR PHRENTROPY

CHAPTER THREE

Etiology and Pathogenesis	83
1. The Complex Biopsychosocial Model	83
2. Biological Vulnerability	87
3. Genome	92
4. Prenatal, Perinatal and Gender-Related Factors	100
5. Parenting	101
6. Social, Cultural and Economic Factors	113
7. Life Events and Clinical Decompensation	115
8. Environmental Factors and Illness Course	117

CHAPTER FOUR

Psychopathology	123
1. Introduction	123
2. Human Information Processing Disorders	136
2.1. Hallucinations	136
2.2. Delusion	156
3. Neuropsychological Disorders	174
3.1. Introduction	174
3.1.1. Memory	175
3.1.2. Attention	178
3.1.3. Learning	179
3.1.4. Recognition of Faces and Facial Expressions	180
3.1.5. Meta-Cognition	184
3.1.6. Strategic Planning	187

4. Impairment of Machiavellian Intelligence	188
5. Deficits in Procedural Competences	194
5.1. Loss of Planning Skills	194
5.2. Alteration in the Executive Functions	194
6. Disturbances of the Emotional Sphere	197
7. Impairment of Self-efficacy	199
8. Negative Symptoms	204
9. The Constructivist Triad: <i>Entropy of Mind</i>	209
10. Apophany, Phrenentropy, Paleognosy	213

PART THREE

NEGATIVE ENTROPY

CHAPTER FIVE

Conceptualization, Diagnosis, Assessment	227
1. Categorial Orientation	227
2. Dimensional Orientation	236
3. Structural Orientation	238
4. Functional Model	238

CHAPTER SIX

Prolegomena for Psychological Therapy of Schizophrenia	245
--	-----

CHAPTER SEVEN

The Setting	259
1. Introduction	259
2. Crisis Intervention and Patient Care	264
3. Hospitalization	272
4. Out-Patient Structures	273
4.1. Day Hospital	273
4.2. Day Center	273

5. Out-Patient Care	274
6. Residential Care	275
6.1. The Therapeutic and Rehabilitative Community	275
6.2. The Residential Community	275
CHAPTER EIGHT	
The Neuroleptics: Specific Therapy or Remedy for Symptoms?	277
CHAPTER NINE	
Psychotherapy	287
1. Strategic Orientation	287
2. Coping, Problem Solving, Self-Management	288
3. Self-Observation and Self-Control through Biofeedback	291
4. Improvement of Behavioural Competences	292
5. Management and Treatment of Perceptual Distortion Phenomena	294
6. Analysis and Treatment of Delusion, Cognitive Distortion, and Dysfunctional Schemas	304
7. Management and Overcoming of Negative Symptoms	309
8. Enrichment of Meta-Cognitive Functions	311
9. Promotion of Self-Efficacy and Self-Esteem	316
10. Restructuring and Development of Coalitional Processes	317
10.1. Evolutionary Reconstruction	317
10.2. Analysis of Developmental History	319
11. Revision of the Family History and Construction of a Genogram	320
12. Synchronic and Diachronic Therapeutic Approaches	324
13. Narrative Rewriting	324
14. Conclusion of Systematic Therapy and the Initiation of Counseling and Monitoring	329
15. Family Intervention	331
16. Social and Occupational Reintegration	331
17. Suicide Prevention	334

CHAPTER TEN	
Rehabilitation	339
1. The Complex Orientation	339
2. Meta-Cognitive Functions	339
3. Memory, Attention, and Concentration	341
4. Visual Analysis and Cognitive Strategies	341
5. Relational and Social Skills	343
CHAPTER ELEVEN	
Prevention	349
1. Introduction	349
2. The Complex Orientation	352
CHAPTER TWELVE	
The Prevention of Stigma	363
CHAPTER THIRTEEN	
Piero's Story	379
Epilogue	
Perennial Possession	385
<i>REFERENCES</i>	387



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

ABOUT THE AUTHOR

Tullio Scrimali is a physician, specialized in psychiatry, psychology, and psychotherapy. He teaches Psychotherapy in the Faculty of Medicine and in the Resident School of Psychiatry at the University of Catania. He also teaches Clinical Psychology at the Faculty of Psychology Kore University of Enna.

In the Department of Psychiatry, at the University of Catania, he is the director of the Psychophysiological Laboratory, the Cognitive Therapy and Rehabilitation Unit, and Outpatient Services for Psychosomatic Medicine and Biofeedback.

The author has founded and directs the ALETEIA International, World School of Cognitive Therapy, in Enna. He has developed an intense and wide-ranging international experience in research and teaching in America, Europe, and Asia and is one of well-known and respected authors in the field of cognitive therapy.



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

ACKNOWLEDGEMENTS

Many people have contributed to the realization of this book.

Over the last 20 years, numerous colleagues and friends have participated in my research on schizophrenia carried out at the Department of Psychiatry of the University of Catania, at the Institute for Cognitive Science in Enna, and at the Aleteia School.

In order of importance for their help, I want to first cite Lorenzo Filippone, Francesco Grasso, Giocomina Cultrera, Massimo Sciuto, and Manuela De Leonardis.

Many students in Medicine, in Psychological Science and Techniques, in Psychiatric Rehabilitation, in Psychiatry, and at the Aleteia School have collaborated in the research projects cited in this book. To them I own many thanks for their hard work and incredible enthusiasm.

The English version of the book has been translated by Nancy Triolo and it was revised by James Claiborn. I have to thank both for their fantastic job!

Two persons are crucial to the conceptual framework behind the development of *Entropy of Mind* and *Negative Entropy*.

They are, however, two persons who cannot read these pages: Vittorio Guidano and Carlo Perris.

Vittorio profoundly influenced the evolution of my epistemological and scientific conceptualizations.

The seminar we conducted together at the Department of Psychiatry of the University of Catania on Constructivism and Motor Theories of the Mind was crucial for comparing and verifying the ideas I eventually presented in my book, *Sulle tracce della mente*, while Vittorio published *The Complexity of the Self*, the Italian edition of which, *La complessità del Sè*, was presented at an unforgettable conference organized here in Catania.

In 1988, during the National Congress of the Italian Society of Behavioural and Cognitive Therapy, which our group organized in Pergusa (Enna), I presented my first systematic conceptualization of the constructivist theory of schizophrenia, after long discussions with Vittorio.

One of my fondest memories of Vittorio is from 1992, during the National Congress of the Italian Society of Behavioural and Cognitive Therapy in Rome. There I organized and coordinated a symposium on the constructivist and complex model of schizophrenia and its therapy, and I will never forget the great trepidation with which I observed Vittorio enter the hall and sit in the first row to attentively follow the various presentations of our group.

I will also never forget the joy I felt at his compliments at the end of the symposium.

Those positive comments and encouragements made me understand that I was on the right road, even if 14 years of hard work were still needed before publication of this book.

I want to say, and this is the right occasion to do so, that my conceptual elaboration, the research on schizophrenia, and my own *forma mentis*, as a researcher and clinician, would not have taken the direction it took, if I had not had the fortune of meeting Vittorio Guidano, point of reference and teacher, who left us all too soon.

Thank you, Vittorio!

The other great friend, also gone, I want to thank is Carlo Perris.

The development of the clinical conceptualizations described in this book would not have been possible without the fundamental contribution of Carlo, who was the first to formulate a systematic model of cognitive therapy for schizophrenia. Besides this, Carlo ventured into the difficult area of therapy for psychosis and lucidly criticized the inadequacy of the cognitive rationalist model, propos-

ing a constructivist and complex logic for cognitive psychotherapy in its place.

Carlo appreciated my work and encouraged me to keep on going. We always talked, traveling together around the world, from Toronto to Copenhagen, from Budapest to London to Catania, the city in which we jointly held a series of workshops and symposiums.

It was particularly moving to read the chapter he sent me a few days before he died. This contribution was included in the book I published together with Liria Grimaldi, *Cognitive Psychotherapy Toward a New Millennium*.

In this work, he recognized, with great generosity and friendship, the important role our group played in the development of the cognitive psychotherapy of schizophrenia.

Thank you, Carlo!

A particular thank you goes to Vincenzo Rapisarda, with whom I have spent my entire scientific career, from when I was a medical student and began to prepare my degree thesis under his supervision.

My experience as a psychotherapist, oriented to the treatment of psychosis, began in his studio, with his support and help.

Every important step in my career has been marked by the presence and influence of Professor Rapisarda, including, of course, this book.

The person to whom I owe the development of my international scientific experience is Arthur Freeman. Thanks to him I have been able to present and discuss the themes of *Entropy of Mind and Negative Entropy* abroad, especially in the USA, beginning with the conference he organized at the University of Illinois, in Chicago, in 1994.

We too have shared fantastic times abroad.

Thanks to Art, I was able to organize an International Congress on Cognitive Psychotherapy in Catania, in 2000.

During the Congress, I had the chance to exchange ideas with some of the most important scholars working on schizophrenia today.

Thanks again, Art!

To conclude, I would like to mention the bonds of recognition and affection that tie me to all the men and women who have guided me along the desolate streets of the *Entropy of Mind*.

It is, in fact, my dear patients who, over the last 25 years, have provided the information which constitutes the conceptual basis of *Entropy of Mind* and *Negative Entropy*.

And it is primarily to them that I want to extend a warm and heart-felt thank you.

TULLIO SCRIMALI
Catania, January 2007

Preface

Professor Arthur Freeman

*Dean School of Professional Studies
University of Saint Francis
Fort Wayne, Indiana*

Over the years, my work has been guided, stimulated, challenged, motivated, and rewarded from two major sources. The first source has been my students and collaborators. They have asked questions, posed problems, and challenged ideas. They have been, in many cases, collaborators in theory and conceptual developments. The second source of motivation has been from the patients who have sought my help for coping with problems large and small. I owe both groups thanks for propelling me forward. What I have said on many occasions is that we, as a science, are limited only by our lack of ability to think clearly, see new connections, observe closely, or to be open to new formulations and conceptual formulations.

Psychology has renewed and rejuvenated itself over the ages through the ongoing creativity of its practitioners, researchers, and teachers. Often the most brilliant contributions have stemmed from the clarity of vision to see the obvious despite collegial pressure, taking an unpopular position, or challenging the zeitgeist. We see this in the works of such leaders as Wolpe, Beck, Seligman, Bandura, and many others. These individuals saw problems in new ways, and developed conceptual structures for explaining behavioural. They

then presented these ideas to their students who questioned, challenged, or disputed the views presented. This then allowed for the sharpening of the framework, and a clarity of the message.

I remember with great affection my early years at the Center for Cognitive Therapy at the University of Pennsylvania. In the late 1970s the clinical staff, Fellows, and interns would meet with Dr. Beck in a very undistinguished room. It had exposed pipes on the ceiling, and a variety of mismatched chairs. All of this went unnoticed by the staff inasmuch as we were engaged in discussion or debate. Dr. Beck would present ideas and then challenge us to challenge him. The only negative part of the discussion was that it ended. The following week it resumed, being fueled by Dr. Beck's thinking, clinical formulations, and clarity of thought. He took the obvious, that cognitive and behavioural components of behaviour had to be explicated and then viewed as targets for change rather than symbols of underlying conflict.

Through the years, the dramatic personae changed as staff left to found their own centers, their own clinical and research programs, or their own practices. It has been my good fortune to have been a part of that experience.

In a similar fashion, my dear friend, esteemed colleague, and valued collaborator, Prof. Tullio Scrimali, has moved our field further along. I have had the good fortune, yet again, to see Scrimali's ideas develop over the last decade. In his work as a teacher, clinician, researcher, theoretician, and leader of his own school, he has seen various parts of the problem. He has raised the questions, discussed them with his collaborators and students, and has had the clarity to put them together into a coherent and cogent model of treatment. It has been my privilege to not only be a collaborator, but close personal friend. Our work has taken us to many countries and many cities in his native Sicily where he is Professor of Cognitive Psychotherapy at the University of Catania.

Scrimali has targeted perhaps one of the most difficult of patients, those with schizophrenia. This group, often misunderstood and over medicated, have ended up at the periphery of functioning. Seen as untreatable except with major pharmacological intervention, these individuals have languished in hospitals, day treatment centers or residences for the psychotic.

In this major volume, Scrimali offers an integrative biopsychosocial perspective. He focuses on the biological markers and the clini-

cal psychopathology and psychophysiology of the disorder. He examines the cognitive and behavioural manifestations of the disorder in a clear and understandable manner. The sections on assessment and treatment deserve special attention. The assessment chapter describes the neuropsychological, psychophysiological, and family issues that are the essence of schizophrenia. Writing as a psychiatrist, neuro-psychologist, and clinical researcher, Scrimali describes the problems and then describes the treatment.

With a goal of helping the patient with schizophrenia toward more effective coping and enhanced function, Scrimali also takes a rehabilitation focus that describes the social, family, and individual work that must be coordinated in the best interest of the patient.

Whatever small contribution I have made to his work through our many years of collaboration are rewarded in this superb volume.



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

The Salt Works, Negentropic Machine

And finally this book is also finished,
I straighten my desk, shelves, and archives that have been
cluttered by scientific articles, volumes, papers, CD's ...for
years.

Leafing through the manuscript, I relive the story.

The *beginning*, and above all, the *why*.

The *beginning* was marked by my first patient, assigned to me by
my Professor, a few days after my degree.

It was a young woman, sitting in his office, suffering from schiz-
ophrenia.

Hallucinations, delusions, bizarre behaviour: a really difficult
human and clinical case, but also a first encounter with the role (still
improbable) of therapist, fascinated by the Entropy of Mind.

With patience I established contact, then I tried to study the case,
only to discover, almost immediately, that there wasn't much to learn
in the books already written.

Since then I have always worked with schizophrenic patients, ac-
cumulating experiences, emotions, and knowledge.

The *why* of this book consists of the desire to make the results
of many years of research and clinical activity, carried out at the In-

stitute of Clinical Psychiatry of the University of Catania and at the Institute for the Cognitive Sciences in Enna, available to colleagues and students.

If one loves to study humankind, one cannot help but be fascinated by the condition of schizophrenia which, unique among pathologies, is not shared with any other living creature.

Schizophrenia is the exclusive prerogative of *homo sapiens*, just like the self-conscious mind.

Thus, to study and understand schizophrenia means to study our own personal existence.

I know, this book is very long and weighs too much for the briefcases of colleagues and the backpacks of the students; but I couldn't have made it any shorter.

From *mind, brain, entropy* to *Entropy of Mind*, or from *Phrenentropy* to *Negative Entropy*, there are no shortcuts, and there is still so much to explore.

I will end the story with some thoughts about my home: this wonderful, incredible Sicily, hologram of life, that every day enchants and stuns with visions, emotions, stories, colors, perfumes, flavours...

It is a land that has already seen everything and embodies every possible form of experience and knowledge.

Disturbing, tormenting, shocking; it is impossible to remain untouched by its appeal!

I go out to shop and I see the beach where Ulysses set ashore; I go to the sea and there I see the rocks thrown by the Cyclops; I go to the bank near where Dedalus, fleeing on wings from Crete, landed; I look at Etna and see the forge of Efesto; I travel to Enna and find myself on the shores of lake Pergusa, in the middle of Persephone's abduction by Hades.

Myth, legend, history, culture, everywhere.

It is true, this land teaches you, captures you, and you cannot do anything about it; it is always and forever surprising. There is a precious gift waiting around every corner. In my case it was *the salt works, negentropic machine*.

The last book I wrote, *Sulle trace della mente*, began happily inspired by the sweet nostalgia of "When I was a child..."

I described the surprise I felt when I found shell fossils in Enna, high in the mountains, far from any sea.

But, once again, I was in search of inspiration that would also be tied to my own life experience on this enchanted Island, in the middle of the Mediterranean.

In the end, the inspiration arrived in a surprisingly unexpected way.

After long weeks of grueling work, Giulia and Susanna made me promise to take a trip. We decided to go to the western part of the Island, an area I wasn't too familiar with.

We finally left, after making a deal. They said—*No talk of entropy, no thinking about patients, just sea, beach, restaurants, relaxation, and tourism.*

Near Trapani, late one afternoon, we visited the salt works.

I was keeping my promise, and I found the Salt Museum interesting; and then it happened, I was again under a spell.

In a corner, I saw a poster with the alluring title: *The salt-works: negentropic machine.* I couldn't resist. I borrowed pen and paper and began to take notes.

Here was the inspiration for the preface of my new book!

My daughters found me, and immediately suspicious, said: *Papà, this is not OK; you're at it again, what are you writing? Do we have to keep an eye on you every minute?*

It's not my fault—I said, trying to defend myself—This land of ours is too full of things to discover!

The Salt Works, exactly like the human brain, creating order from disorder, and doing so by using energy coming from the wind and the sun.

The product is salt, for our daily bread, just like knowledge is a product of the mind, for our daily lives.



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

Introduction

Schizophrenia, in all its aspects—clinical, psychopathological, rehabilitative and therapeutic—constitutes the central problem in modern psychiatry. The World Health Organization (WHO) considers schizophrenia one of the ten most serious disabling conditions afflicting humankind (*Medscape Psychiatry & Mental Health*, 2005).

If we consider that the incidence of this disorder is around 1% of the population, without significant variation worldwide, it is clear that this dramatic condition affects millions of people (Gottesman, 1991).

Keeping in mind both the burden of human suffering this pathology creates for the entire family and the enormous social costs, it becomes evident that the treatment of schizophrenia is one of the most important challenges facing psychiatry today.

Given this dramatic and complex reality, we are forced to admit to the persistent backwardness of our understanding of the dynamics of the illness and, above all, to the lack of an unequivocal, systematic, and satisfying therapeutic approach.

One myth to debunk is that the introduction of neuroleptic drugs has substantially modified the overall situation regarding the treat-

ment of schizophrenia. An exhaustive meta-analysis by Warner (1985) of all studies on the course of schizophrenia in the USA and Europe found that recovery rates, after the introduction of neuroleptic drugs, have not significantly improved, and that the decreasing hospitalization of schizophrenic patients during the twentieth century was an already well-established trend *before* the introduction of neuroleptic drugs.

The results of other research also confirm these findings; Wing (1987), for instance, writes that the introduction of neuroleptic therapy has not modified the long-term course of the schizophrenic syndromes (Wing, 1987).

Two studies by the World Health Organization entitled *International Pilot Study of Schizophrenia* and *Determinants of Outcome of Severe Mental Disorders* (World Health Organization, 1979; Jablensky, Sartorius, Ernberg, Anker, Korten, Cooper, Fay & Bertelsen, 1992) both note an apparent paradox: the prognosis for schizophrenia today appears more favourable in developing rather than in industrialized countries. This unexpected result suggests that the organization and management of structured (and costly) health services and the wider use of drug therapy are not correlated to a favourable prognosis for the disorder.

It would seem that a less stressful and competitive social climate and the possibility of the patient to maintain an acceptable social role, in part due to the existence of simpler lifestyles and livelihoods, constitute the most important variables for the successful course of the illness.

Studies on the emotional climate of the family have also incontrovertibly demonstrated its fundamental role in determining the clinical evolution of schizophrenia (Leff & Vaughn, 1989). All this leads us to conclude that still today the problem of schizophrenia remains open since unequivocal models for the etiology and the psychopathology of the illness, or even clear evidence regarding therapy, do not yet exist.

Not only does drug therapy seem to simply modify the clinical phenomenology of the illness and not its course, but sufficient proof of the efficacy as well as the cost-benefits of psychotherapeutic work are lacking.

Emblematic of this situation is the state of confusion and contradiction (it might be the case to call it *entropy*) that exists even in recent literature regarding the cure of schizophrenia.

In answering the question—*How useful is psychotherapy in the treatment of schizophrenia?*—the authors Tsuang and Faraone (1997) from the Harvard Medical School have stated unequivocally, citing the conclusions of the American Psychiatric Commission, that psychotherapy cannot be considered an effective treatment for schizophrenia.

The two authors add that according to the American Psychiatric Association (APA), psychotherapy for schizophrenic patients constitutes an additional treatment to drug therapy, which remains the only valid approach, and the principal aim of psychotherapy should be to improve the patients adherence to the drug protocols.

Yet the guidelines for the treatment of schizophrenia, published by the American Psychological Association in 1997, affirm just the opposite, stating that psychotherapeutic and rehabilitative techniques constitute an important component in any treatment plan (American Psychological Association, 1997).

In 1999, the guidelines in *Expert Consensus Guideline Series: Treatment of Schizophrenia* (McEvoy, Scheifler & Frances, 1999) say that though drug treatment is almost always necessary, it is not sufficient by itself. Persons suffering from schizophrenia need, according to the committee of experts who wrote the report, services and psychological support structures to manage and resolve the fear, isolation, disability, and stigma connected to the illness.

The confusion and inconsistency are considerable and have potentially disastrous consequences for patients and their families. The opinions of Tsuang and Faraone (1997) are cited extensively in the volume on schizophrenia in the authoritative series “The Facts”, published by Oxford University Press.

These volumes are considered to be the last word on current research in a number of fields and are used as teaching tools for education of experts and non-experts alike.

It’s easy to imagine the negative consequences of assertions like those of Tsuang and Faraone on the family of a schizophrenic patient in psychotherapy or on the family physician.

Even if the evidence is increasing regarding the efficacy of integrated therapeutic protocols based on psychotherapeutic and rehabilitative treatment, especially in the European literature, it should be pointed out that satisfactory experimental data still do not exist, in part because of the methodological, organizational, and ethical difficulties inherent to controlled trials.

In this respect, I would like to make the following points on the one-sided nature of the literature dealing with the efficacy of neuroleptic drugs.

The pharmaceutical companies have enormous resources to finance research on the effectiveness of their drugs.

On the contrary, research in psychotherapy is financed exclusively by public money in the universities, and the difference in available funding is immense; the Farindustria in Italy admits that 90% of research in the area of health care is financed by the pharmaceutical industry (Farindustria, 2005).

Furthermore, while experimentation concerning neuroleptics almost always covers brief periods and not the actual natural history of the disorder, research in the psychotherapy of schizophrenia considers not only symptoms, but also relational, social and job-related variables.

Considering all this, it is not surprising that in the face of the much touted success of the neuroleptics which, as I will demonstrate, has not been corroborated in clinical practice, cognitive psychiatrists are much more prudent in singing the praises of the psychotherapeutic model.

Wykes, Tarrier and Everitt (2004) for example, claim that even if the role of psychotherapeutic and rehabilitative treatment in schizophrenia is indisputable for the indubitable capacity to improve the course of the disorder and better the functioning of the patient and the family, more clinical analysis is needed to confirm the efficacy of psychologically-based treatments.

Neither proponents of the systemic approach nor therapists working in the cognitive-behavioural field (which represent the two major schools of psychotherapy dedicated to developing treatment programs) have been able to produce literature that demonstrates unequivocally the efficacy of proposed therapeutic protocols (in part, for lack of the mentioned-above funding).

The comprehensive indeterminacy of the therapeutic approach is also traceable to the lack of a satisfying and documented model linked to the etiology of this serious disorder.

Regarding this, I would also point out that the standard cognitive model, based on a rationalistic approach to the psychopathology and psychotherapy of schizophrenia, also appears to be wanting. This conceptualization of the problem of schizophrenia transposes, *sic et*

simpliciter, the rationalist orientation from the field of neuroses and depression to that of schizophrenia.

In the traditional cognitive orientation, the schizophrenic patient, like any other neurotic or depressed patient, is described as affected by a series of errors in the elaboration of information that must be corrected in the course of therapy. Missing is any reference to conscious processes and their alteration in relation to the biology of the brain.

In the new, complex, constructivist model of schizophrenia I have elaborated, I propose a very different vision of the patient as carrier of a personal, specific construction of reality, which is dysfunctional in that it does not permit positive social adaptation and elaboration of a coherent narrative. Such a vision of reality interrupts the developmental process that ought to be characterized by a dynamic of consciousness during the life cycle of *homo sapiens*.

The crucial role attributed to the relational and social aspects in this conceptualization of psychotic phenomena is in agreement with the position of Stanghellini (2002), who states that only with difficulty can a psychopathological theory of schizophrenia deny that psychosis is a disorder of inter-subjectivity.

The constructivist approach to schizophrenia which I have developed is closely tied to motor theories of the mind that constitute the basis of our psychophysiological research at the Institute of Clinical Psychiatry at the University of Catania and at the Superior Institute for Cognitive Sciences in Enna (Scrimali, Grimaldi, 1991).

I also refer to research in human ethology which describes the influence of parenting on the construction of the processes that support the patterns of the coordinated dynamics of the self and its becoming.

Biological psychiatry excludes the psychological dimension of the mind from its field of interest, asserting that the study of this dimension is not possible in scientific terms (it would be better to say in terms of positivistic science).

The majority of the schools of thought are uninterested in the brain, as if the mind and its becoming can be ontologically separated from its physical support.

Both these approaches neglect (the first more than the second) the relational and social dynamics of human affairs.

It should also be said that theorists of the social orientation in psychiatry do not worry much about the biological and intra-psychic dimensions either.

This state of things has harmed, and continues to harm, the understanding of psychopathology, the formulation of a convincing set of etiological theories, and the creation an exhaustive clinical approach.

This trend assumes a special relevance in the field of schizophrenia, a pathology particularly unresponsive to all reductionist and one-dimensional attempts at its understanding, management, and treatment.

Still today, most accredited theoretical approaches to the psychopathology of schizophrenia and its treatment are characterized by an early 20th century reductionistic, deterministic conception. Energy, matter, and linear causality still inform the theoretical elaboration of classic psychopathology.

The aim of this book is to delineate a complex, social, psychobiological approach to schizophrenia, originating from the most recent developments in neuroscience with particular attention to information theory, complexity theories, and the theory of complex systems, as well as to the physics of dissipative structures, unstable dynamic systems, the laws of chance and probability, and to human and animal evolutionary ethology (Thelen & Smith, 2000; Roberts & Combs, 1995).

Rather than limiting observations to single patients, the study of populations constitutes an additional perspective that will be constantly under consideration.

The complex approach to schizophrenia developed and described in this monograph and defined as Entropy of Mind or Phrenentropy, is collocated within the contemporary cognitive-constructivist movement that proposes, in the fields of psychology, psychiatry, and the social sciences, a new vision of reality and of the consciousness of the self (Mahoney, 1991; Lyddon & Schreiner, 1998).

The new theoretical and conceptual perspective on schizophrenia that I have developed under the name *Entropy of Mind* or *Phrenentropy* is articulated around the thematic of a science, born and 'raised' in the second part of the 20th century (*like myself*), with particular reference to information theory, cybernetics, systems theory, complexity theories, and the physics of non-linear dynamics.

When I was seven, my favourite toy was not a gun (energy) or blocks (matter), but a fantastic, tiny Japanese *Nagoya* radio with seven transistors: *a window open to the world!*

When I was seven, my greatest passions, like today, were books, magazines, and the cinema.

Information constitutes the script of my life. Information represents the leitmotiv of this monograph.

The first sciences of the mind, psychoanalysis, behaviorism, and biological psychiatry, which developed between the end of the 19th and the beginning of the 20th centuries, are irremediably tied to the physics of energy and matter.

These sciences describe human beings as deterministically subjected to internal motivations (libido) or external conditioning (reinforcement and environmental contingencies) or rigidly subordinated to one's own biological reality (chemical mediators and nervous structures and pathways).

Today psychoanalysis, behaviorism, and biological psychiatry constitute, for people like me who work with complexity theory, an important legacy, but one necessarily tied to the past.

Each of these reductionist orientations represent only one possible level of interpretation of complex human reality and must be integrated with other levels, including the relational and the social, in light of an epistemology of complexity.

Humans, defined as epistemic beings capable of evolving, problem solving, and exploring their world, construct open societies, informed by principles of solidarity and tolerance. They constitute a paradigm that originates from a Popperian epistemology of hypothetical realism and from complexity theories upon which this monograph is based.

The end of certainty (Prigogine, 1997), the advent of multivalent logics, motor theories of the mind, the systemic and ecological dimension, the ethological model, and the sciences of chance and statistics, create the possibility of a *complex science of the mind*.

The first part of this book, *Mind, Brain, Entropy*, is dedicated to the attempt to delineate a provisional, but already coherent, description of actual trends in research in neuroscience and cognitive science, with particular reference to notions relevant for the subsequent theoretical elaboration of *Entropy of Mind*.

In the second part, *Entropy of Mind* or *Phrenentropy*, a cognitive-constructivist, complex model for the psychopathology of schizophrenia is illustrated that originates from the theoretical framework delineated in the first part of the book.

In the final section of the book, called *Negative Entropy*, an original clinical protocol, elaborated over the years and widely tested with encouraging results, is discussed.

I have imagined the reading of this book as a *journey* towards a mysterious destination: *the desolate and terrifying land of the Entropy of Mind* where disorder imposes its dominion through anguishing delusions (*at the center of the conspiracy*), terrifying hallucinations (*obscene voices that tell me what to do*), the loss of identity (*I am no longer me, if I look in the mirror*), and the regression to more primitive forms of thought that annul hundreds of thousands of years of biological and cultural evolution (*I am being controlled from outside*).

This book is a precious gift of those whom I have met, while exploring the agonizing Entropy of Mind

Lost men and women, frightened, diffident, without emotions, in the dead land of disorder, who accepted to share their terrifying experiences and travel a long and difficult road toward the new dimension of Negative Entropy.

PART ONE

Mind, Brain, Entropy



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>

Cognitive Therapy and Schizophrenia: From Human Information Processing to the Logic of Complex Systems

Reflection on the development of the cognitive orientation in psychotherapy begins with the consideration that interest in psychosis, especially on the part of some Italian authors (Perris, 1996, Scrimali, 1994; Scrimali & Grimaldi, 1996; Scrimali & Grimaldi, 1998; Scrimali, Grimaldi, Rapisarda & Filippone, 1988), has constituted one of the most important moments of crisis (in a Kuhnian sense) in the classic cognitive paradigm, developed by Ellis and Beck, and redefined as *standard* by Clark (1995).

The epistemological and doctrinal framework of *standard cognitive psychotherapy*, already criticized by Guidano and Liotto (1983), has revealed itself to be especially inadequate when dealing with delusions and hallucinations.

Only the adoption of a constructivist, narrative, and hermeneutic perspective permits us to approach delusion in explanatory and not just descriptive terms, just as adhesion to motor theories of the mind permits the development of a new conception of perception able to explain hallucinatory phenomena.

The work of Perris, on schizophrenia and on the difficult patient, has not only extended the scope of the application of cognitive therapy from emotional disorders and anxiety to psychosis,

but has, above all, proposed and implemented an epistemological and clinical revolution in complex, constructivist terms (Perris, 1989, 1993).

Followers of Beck, based on criticisms and solicitations coming from constructivist theory, have long looked for a sufficiently coherent model, with a proven epistemological and scientific background, to tie to the considerable evidence accumulated in the 1980s regarding its undeniable clinical effectiveness (Beck, 1952, 1967, 1976, 1979; Beck & Freeman, 1993).

In the second half of the 1990s, a considerable effort of conceptual elaboration and dialectical synthesis aimed at going beyond a simply generic approach to psychotherapy in order to establish the basis for an actual "School" known as "standard cognitive therapy" (Clark, 1995). To achieve this end, the central axioms of the cognitive approach in psychotherapy have been reconsidered, adjusted, and amplified (Clark, Beck & Alford, 1999).

The most important and frequent criticisms of standard cognitive psychotherapy can be summed up as follows (Guidano & Liotti, 1983; Mahoney, 1991; Perris, 1996, 2001; Scrimali & Grimaldi, 1996):

- standard cognitive therapy attributes secondary importance to emotions that are considered a sub-product of cognition according to the well-known aphorism: *As you think so you will feel*;
- standard cognitive therapy does not adequately take into account relational and social factors;
- standard cognitive therapy does not attribute enough importance to the therapeutic relationship;
- standard cognitive therapy places too much emphasis on the conscious processes of information processing, neglecting the unconscious components.

Following the emergence and development of the preceding criticisms in the 1990s, Beck, together with Clark and Alford, have further reconsidered the original position of standard cognitive therapy (Alford & Beck, 1997). Today the basis of standard cognitive psychotherapy can be restated as follows (Alford & Beck, 1997):

- human beings are constantly animated by a primary mental process, consisting of the attempt to elaborate models of reality that are indispensable to increasing chances for survival. In the area of information processing, the mind does not behave like a passive receiver of stimuli but actively constructs patterns of knowledge. Here the partial acceptance of the constructivist model and a progressive distancing of the computational metaphor are clear;
- the information processing take place at different levels and are not always conscious;
- cognitive processes are differentiated in *lower level of information processing*, tied to the intrinsic characteristics of stimuli, and *higher level processes* that are traceable to semantic and digital codification processes. Here the constructivist position emerges, which includes a tacit component to the processes of knowledge;
- information processing, tied to the immediate adaptation to the environment and to survival, are constituted by schema linked to the biological basis of the individual and, therefore, to motivational processes. Higher order processes help, above all, to better social adaptation and the pursuit of increased well-being. Here the conviction that explicit cognitive processes have a more important role than tacit processes is evident, while in the constructive approach tacit knowledge is of primary importance;
- a crucial aspect of psychopathological conditions is constituted by a malfunctioning in second order information processing which could lead the patient to categorize reality in pathological terms;
- second order information processing and heuristic programs, developed to interpret reality, called schemas, are constructed in the course of individual development, while first order processes are primarily biologically determined.
- the fundamental objective of therapy is to correct second order dysfunctional processes.

These last three points are faithful to the classic doctrinaire framework that Guidano (1992) has called the rationalistic approach to standard cognitive therapy.

Regarding schizophrenia, neither Beck nor his students have seriously addressed these issues until the late 1990s. In England, however, a group of authors, Fowler, Garety, Kuipers, Kingdon, Turkington, and Tarrrier have developed therapeutic protocols essentially based on the application of Beckian concepts to the area of psychosis (Fowler, Garety & Kuipers, 1995; Kingdon & Turkington, 1994; Tarrrier, 1992).

The work of Robert Liberman and Ian Falloon can be traced to the rationalist-cognitive and cognitive-behavioural approaches (Liberman, 1988; Liberman, 1994; Falloon, 1985).

These authors have developed an interesting, rehabilitative and psycho-educational model for schizophrenic patients, characterized by a very pragmatic attitude and oriented, above all, to the clinical management of symptoms (Falloon & Liberman, 1983).

Beginning in the late 1990s, Beck also realized the importance of this topic for schizophrenia and of the need to expand the protocols of cognitive psychotherapy to the clinic (Beck & Rector, 2000).

On the whole, this amounts to a mere transposition of the standard psychotherapeutic model from the field of depression to that of psychosis.

As part of the international cognitive movement, in Italy, beginning in the second half of the 1970s, an original proposal formulated by Vittorio Guidano (who died prematurely in Buenos Aires on 31 August 1999) and Giovanni Liotti, was being developed.

In 1983, the two authors published *Cognitive Processes and Emotional Disorders*, a work which has considerably influenced the development of international clinical cognitive theory (Guidano & Liotti, 1983).

The model proposed by Guidano and Liotti can be traced to the following fundamental aspects:

- an evolutionary perspective regarding the relationship between cognition and reality;
- an active motor paradigm of the mind;
- the central role of the process of self-consciousness;
- the description of a double articulation of the processes of knowledge, divided into tacit and explicit components.

From this base, a new proposal in psychotherapy and psychopathology was elaborated during the following decade by Giordano. Initially defined "systems-processes" (Guidano, 1988), it was subsequently called "post-rationalistic" (Guidano, 1992).

Central to Guidano's theory is the concept of the *cognitive organization of personal meaning*, which is the result of the development of the processes of knowing and of the structuring of the self.

Every psychopathological decompensation is traceable to a *disturbance of self-referential processes*, aimed at the maintenance of internal coherence and constituting an unstable phase, resolvable only through a new and better articulated equilibrium. This equilibrium originates from the integration of the disturbing experiences into the system of personal consciousness. This integration is activated through *evolutionary or regressive processes*. The task of psychotherapy should be to favour the establishment of the former and the hindrance of the latter.

Guidano's constructivist proposal consists of a psychotherapeutic approach that is no longer focused on the correction of errors that the patient commits in the elaboration of information regarding reality, typical of the rationalistic perspective of classic cognitive therapy. Rather, this approach focuses on the reordering of perceptive experience aimed at the restructuring of the patterns of self-coherence.

The role of emotions becomes central and is no longer considered a sub-product of cognition, but a potent and active form of knowledge that uses parallel and analogue computational processes.

Equally important, in this context, is the function of the therapeutic relationship that constitutes a specific emotional situation in which the processes of reordering perceptive experience and changes in the patterns of self-coherence, are possible.

Another important aspect, according to Guidano (1996), is the conception of the self in terms of dynamic inter-subjectivity.

After having pointed out the significant social aptitude of humans, and the importance of language in the structuring and maintenance of human relationships, Guidano remarks on the relevance of social learning processes in the determination of self-organization.

Relations with others and, in particular, with nurturing figures, constitute the prerequisite for the structuring and development of self-consciousness.

Guidano describes the life cycle as an orthogenetic process of development that proceeds through different phases of equilibrium toward a continuous increase in integration and organization.

Guidano's constructivist contributions to clinical cognitive theory and to cognitive psychotherapy have had extraordinary relevance and have significantly influenced the development of an important and original Italian school of cognitive constructivist psychotherapy (Bara, 2005).

His proposals have, however, generated strong resistance on the part of many authors in standard cognitive psychotherapy, who have criticized the progressive distancing of Guidano's approach from more traditional clinical praxis and the growing interest in the promotion of awareness in subjects with generic existential difficulties.

In reality, at the clinical level, the abandonment of behavioural and cognitive techniques appears debatable, since such a choice does not permit the treatment of serious pathologies, but restricts the field to intervention in minor disorders. Thus one risks what Carlo Perris (1996) described as "throwing the baby out with the bath water!"

The renunciation of various behavioural and cognitive techniques has led Guidano to substantially neglect schizophrenia and personality disorders. These constitute an extremely important area of clinical practice because of the level of hardship that such pathologies create for the patient, the family, and the entire social network.

In the last years of his scientific career, Vittorio Guidano, together with some of his students, increasingly turned his attention to the problem of schizophrenia. In 2001, Mannino and Maxia, (2001) summarized and discussed Guidano's work on this subject.

A focal concept of Guidano and his students on psychosis is identifiable in the conviction that psychosis, neurosis, and normality are placed along a continuum and can be traced to themes of personal meaning for the individual.

The psychotic condition is ascribable to an alteration of the processes that attribute meaning to emotional experiences.

In short, the reflections of Guidano and his collaborators on schizophrenia focus on delusional thought, which does not constitute the central topic of schizophrenia, but is present in many other psychopathological conditions.

The therapeutic procedure proposed, consisting solely of the reconstruction of contexts and the sequences of the patient's experi-

ence, appears to be a therapeutic method useful for the delusional patient, but inadequate for the schizophrenic subject.

All reference to the hallucinatory experience and its treatment is lacking and other aspects of the schizophrenic condition are neglected, including the psychophysiological and neurophysiological gaps and the deficit in communication skills and social competences.

In conclusion, Guidano's proposal, taken up by his students, is linked to the correction of processes of delusional thought, rather than to treatment of the schizophrenic patient, who would be very difficult to treat using only Guidano's intellectual approach. More acceptable, however, is the consideration that only a constructivist and narrative orientation can provide the key to the reality of delusional thought that is conceptualized by Anglo-Saxon authors in the standard cognitive therapy tradition as a set of computational errors to correct with the simple substitution of the logic of the therapist for that of the patient.

Returning to the cognitive-constructivist movement, Mahoney (1991) has focused on what he considers to be the five fundamental aspects of the cognitive-constructivist approach in psychotherapy:

- activity;
- order;
- identity;
- social processes;
- dynamic and dialectic development.

Activity. Human beings are described as active, not only in exploring the environment, but also in their continuous tendency to self-organize. They incessantly search to elaborate an internal order that is opposed to the disordered and chaotic flux of external reality.

Order. Internal order, which is pursued because of the constant activity of the processes of reorganization of the self, does not refer only to the conceptual dimension but to emotional equilibrium. Emotions thus occupy a crucial role as an organizing process. This highlights the importance of the emotional dynamic that should be considered not simply as a symptom to eliminate, but as a sign to interpret.