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Manuel Almendro

Oxígame: Psychotherapy Integration Centre

Daniella Weber

University of British Columbia

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Dissipative Processes in Psychology: From the Psyche to Totality

Manuel Almendro

Oxígame: Psychotherapy Integration Centre
Madrid and Barcelona, Spain

Daniella Weber

University of British Columbia
Vancouver, Canada

This paper articulates a possible framework for understanding and resolving psychopathological phenomena from the perspective of chaos theory and based on the application of Ilya Prigogine's concepts of dissipative structures and processes. Twenty-eight years in clinical practice have shown the human being to be memory-inheritance, which produces a type of "psychological DNA." The personality is thereby crystallized, generating dynamic patterns (*fractals*) in its interference with reality. Although necessary for living, this crystallization is imprisoning. Once the shadow of memory has been resolved and dissolved, the person achieves reorganizing and transrational processes. We develop the concepts of the *emergent crisis* and *vortices* such as *sensitivity*, *instability* and *bifurcation*, considering the symptom to be a trigger for healing-transformation.

Keywords: *emergent crisis, dissipative processes, sensitivity, instability, bifurcation*

The word *chaos* has currently gained relevance in science due to the appearance of new dynamic ways of understanding matter. The meteorologist Edward Lorenz (1993), one of the exponents of such studies, identified chaos as "sensitive dependence ... on initial conditions" (p. 8), better known as *the butterfly effect*. This concept is not far from that of Nobel laureate Ilya Prigogine, for whom chaos is "the non-prediction of probabilities" (personal communication, June 17, 1993). In Pedro Laín Entralgo's (1999) explanation of philosopher Xabier Zubiri's dynamic universe, Laín Entralgo referred to matter as having perceptible qualities, and pointed out that for Zubiri, the psyche emerges from cellular structures by *elevation*. These three concepts seem to be linked in a single idea in the sense that chaos generates differences born from differences.

The research underpinning this article originated in part in chemist Ilya Prigogine's (1984) theories and the concept of a *dissipative chaos* versus determinism, which revolves around the *second law of thermodynamics* and the concept of *entropy*. We have applied this perspective in the context of the *differentiation process* (Spencer, 1855), and in relation to our idea of *positivizing the pathological* to bring about a new way of conceiving psychology and psychotherapy in the form of the *emergent crisis* (EC).

Determinism has been criticized since the beginning of modern science, but we have the impression

that modern science still remains under its parameters, whether those of a pure, hard determinism or a tactical determinism—explicitly or implicitly (Almendro, 2002). Some authors have maintained this critical position regarding determinism, as demonstrated by Prigogine throughout his work. Stanislav Grof (1985), Fritjof Capra (1975/1999), Rupert Sheldrake (1981), David Bohm (1980), David Peat (1987), Paul Feyerabend (1975), José Luís Pinillos, (1998), and Erwin Schrödinger (1944/1967), among others, criticized an expansive determinism that affects both science and society. Paul Davies (1988) affirmed that determinism impregnates all scientific testing, and John G. Taylor (1972) noted that it is ingrained in the very essence of classical physics.

In terms of traditional psychotherapy, we have found that the biological and psychological concept of the *black box* still exists. From the perspective of the EC, these models have an obvious deterministic bias. It is especially striking that the symptom is deprived of a foundation and degraded to the realm of the gratuitous, or to background noise, thereby becoming meaningless. The symptom is reduced to badly learned habits and separated from the self. It is considered irrational and treated using processes based on reprogramming the subject's behavior and mind. Patients continue to be seen as cardboard cutouts of their environments. Deterministic psychology continues to attempt to

control and manipulate variables, to explain, predict and control behavior, de-emotionalizing and disembodiment individuals, granting them, at most, cognitive thinking. Other paths are possible, as discussed in Roger Walsh and Frances Vaughan's (1993) book, *Paths Beyond Ego*.

A dissipative framework for psychopathology is based on a conceptual model that comes from a quantitative model from physics and applies its dynamics to qualitative properties of experiential phenomena within a psychological context. It would hypothetically accept that *emergence* and *crisis*—non-ordinary states of consciousness (NOSCs)—could explain many psychological phenomena considered by deterministic psychology to be pathological. From a dissipative viewpoint, these phenomena, rather than illnesses, would represent a crisis/opportunity entailing a differentiation process, a reorganization and renewal of the person, in an irreversible evolution towards new heights of *self-organization* with the environment. Healing would be considered from a wider perspective as a process underlying the life processes of differentiation and the creation of individuality.

Method

The following case study will be used to illustrate this approach to psychotherapy:

Participant

Genís¹ is a considerably successful twenty-five year old male artist and designer—some of whose NOSCs we have already studied—whose therapeutic demand was brought about by his parents' difficult separation and the break-up of his family. Familial violence and continuous conflict and confrontation were also present. The father's behavior ("the hysteric" character inherited by Genís and studied in this paper) made, in orders and countermands, in histrionic and authoritarian events, an important mark on this individual's life. This resulted in emotional saturation during specific moments of confusion and extreme apprehension, and also in doubts regarding aspects of Genís' own personality.

The clinical case of Genís—as the monitoring of a process—will serve to show how chaotic routes occur, how the *attractor* that initiates the crisis emerges, and how these processes can be understood by the psychologist. For this purpose we have drawings available in which the patient captures what he has encountered in experiential sessions witnessed by the therapeutic team. We believe they eloquently express the unconscious processes involved. Individuals comment that the experiences

corresponding to these drawings are of states that have not been subjected to repression, and have amplified self-perception to unexpected limits. These experiences are the NOSCs, which can provide a better understanding of the power of symptoms that can overtake a person at any given moment.

We are going to develop a study of the dissipative process of one of Genís' characters, defined by him as "the hysteric," while the other two characters are "the invalidated" and "the passive mediocre."

Procedure: Methodology of the Clinical Practice

In the development of the clinical process we considered the different schools that propose problem-centered psychotherapy, such as that of Marvin Goldfried and Gerald Davison (1976); David Malan (1979); Paul Watzlavick, Janet Bavelas, and Donald Jackson (1967); and Jay Haley (1969, 1976, 1984). Our aim was to begin the therapeutic process by addressing the patient's most urgent problem in order to clear the way to go "deeper." The therapeutic process of the EC follows an order established by a protocol designed by Manuel Almendro. This psychotherapeutic integration process, called Oxígeme, has already been applied to several hundred people. Two consecutive procedures are employed: 1) problem-centered therapy, a module of at least three months; and 2) person-centered therapy, which takes an average of two years.

Verbal and psychocorporal sessions are conducted, along with a personal anamnesis (a patient's detailed recalling of his or her life in stages). These permit an immersion into conflicts within a therapeutic context. Through this initiation process, the problem is gradually exposed. Techniques of self-perception, starting from lower abdominal breathing (*hara*), are taught in order to achieve mindfulness. The patient identifies his or her own attractor and *fractals* (negative patterns of behavior). This leads to the construction of the patient's dissipative routes and corresponding armor, which materialize in a diagram. Subsequent to psychocorporal sessions, the patient makes drawings that capture the process: perceptual phenomena—visual, auditive, somatic—and especially the patient's life memory. Drawings, diagrams, and verbal and emotional expression show the patient's awareness of his or her problem and persona, and allow us to access the unobservable processes at the root of psychic and subjective processes. Video recordings are also employed in order to re-observe the processes.

As “the symptom [itself] is a non-ordinary state of consciousness” (Almendro, 1994, p. 463), in therapy we make use of techniques belonging to this realm. These include breathwork, psychocorporal work such as Induced Vibration (Almendro, 1994), and meditation, all of which integrate the body, feelings, the mind, and consciousness. The therapeutic process also includes *in vivo* work, association, free-floating attention, Gestalt techniques (Perls, 1973; Naranjo, 1972; Peñarrubia, 1998), and some cognitive-behavioral techniques, mostly in relation to the processing of behavioral patterns. Our approach is that of an integrative psychotherapy based on a unitary concept of psychology centered on human beings and their healing, transformative, and evolutionary potential.

Chaos Theory in Psychotherapy: Some Perspectives

In Frederick Abraham and Albert Gilgen's (1995) *Chaos Theory in Psychology*, emphasis was placed on the nonlinear, since therapy groups are considered to be nonlinear dynamic systems in which communication must be analyzed on the basis of chaotic patterns. This method entails analyzing static samples and perceiving the dynamic characteristics of psychotherapeutic initiatives. It is as though the objective is to rescue nonlinear processes from the realm of the demonic—in other words, to no longer consider them as forming part of human degradation.

The Western tradition of psychotherapy has long assumed that disorder is the cause or manifestation (or both) of individual and collective dysfunction, and that static equilibrium is the goal of psychotherapy (Mahoney & Moes, 1997). Catherine Lasser and David Bathory (1997) considered pathology to be not only a list of symptoms, but rather a hidden interactive structure or organization generating those symptoms. They also affirmed that a linear and causal structure does not allow clinical staff or researchers to explore this area in depth. Pathology does not fit the model of the simple machine, which relegates it to a description of DSM symptoms; complexity lies behind pathology.

In discussing whether schizophrenia can be considered a chaotic disease, Wolfgang Tschacher and Christian Scheier (1997) affirmed that pathological behavior evolves out of healthy behavior by way of a *bifurcation* between two different dynamic systems. Current regressive behavior need not be considered pathological. The original trauma or threat posed by

the disintegrating experience itself is aggravated by rigid closed boundary constraints and the negative interpretations presented to the self by the object-environment (Perna, 1997a, 1997b). For Prigogine and Isabelle Stengers (1984) “there are two conflicting worlds, a world of trajectories and a world of processes, and there is no way of denying one by asserting the other” (p. 252). The former is deterministic and mechanistic, and the latter, to which human behavior belongs, non-deterministic and chaotic.

In relation to processes, Humberto Maturana and Francisco Varela (1984/1998) also exposed the complexity inherent in neuronal functioning, and expounded the need to study neurons not as isolated entities but rather as members of large groups that appear and disappear through their cooperative interactions, in which each neuron has multiple and changing responses.

In our opinion it is Prigogine (1984) who seems to have focused in more depth on the general laws of chaos in physics by establishing the concept of *dissipative structures* as an irreversible phenomenon, and by describing the processes of evolution in nature in terms of reversing the second law of thermodynamics. The term dissipative structure, first coined by Prigogine in 1967, refers to a giant fluctuation stabilized by energy exchanges with the outside world when an open system reaches maximum instability, producing a new type of organization in far-from-equilibrium states (Prigogine, 1972; Prigogine & Stengers, 1975, 1979, 1984). According to this revolutionary concept, natural processes would no longer tend towards degradation, extinction, and thermic death or *entropy*, but rather towards renewal, generating new orders from the point of chaos.

The Emergent Crisis

I'm repeating my father's life! I'm repeating my mother's life! These anguished phrases, heard recurrently during years of clinical practice, one day found their echo as they intersected with Almendro's reading of Prigogine's work. From this intuitive moment surfaced the power to reformulate part of Prigogine's so-called dissipative structures within the field of psychology. This went hand in hand with finding in clinical practice that certain physical laws were played out in what we have termed the *dissipative routes of characters* (DRCs) and the *dissipative routes of events* (DREs). The process continued with the development of the *vortices* more than fifteen years ago. The word *vortex* means whirlpool or whirlwind (from the

Latin *vertere*, “to turn”), and defines a chaotic structure that gives shape to the flow of energy, generating a continuous connection between the exterior and the interior. The concept of the EC predates these findings and encompasses all the dissipative processes. In turn, the Oxígame process is the container by which we name an entire general process of integration within the field of psychology.

Background to the Emergent Crisis

The German psychiatrist Karl Theodor Jaspers (1913/1963) observed those aspects of mental illness we call nonlinear and believed they should not be considered negative. He stated that patients are too readily labeled as demented whenever they display irrational behavior, which could lead to jeopardizing the infinite richness of human experience.

We have researched a variety of uncommon therapeutic initiatives that have devoted some attention to psychological phenomena that show discordance (instability) with psychological theories. Sigmund Freud already mentioned archaic elements (the archaic unconscious) that were hard to control and mysterious for the human psyche, and Otto Rank (1924/1994) made reference to the perinatal trauma. However, it was later, at the end of the sixties, when some little known researchers such as the psychiatrists John Perry (1966, 1974, 1976) and Lee Sannella (1992) began talking about altered states of consciousness. Moreover, in anti-psychiatry, Ronald Laing (1960, 1985) began by criticizing the deterministic model, pinpointing the origin of crisis as socio-familial. Stanislav and Christina Grof (Grof, 1985; Grof & Grof, 1990) extended this criticism with their theories on NOSCs, Basic Perinatal Matrices (BPMs), systems of condensed experience (COEX systems), and so forth. NOSCs and COEX systems are concepts that expose nonlinear human systems since they break continuity, while BPMs demonstrate, supported by recent experiments, that the fetus is not a tabula rasa, as determinism maintains.

The emergent crisis concept. Human systems are open and complex. Working along the lines of modern chaos theories, the EC represents a natural, *nonlinear* phenomenon that arises in the guise of a psychological crisis. This crisis breaks the “normal order” and offers a reorganization of the person’s life, which may or may not be accepted. Here, the rupture is not considered to be a destructive process that must be arrested by means of suppressive techniques. Thus the EC, as a new perspective in psychology, aims to invert

the conception of illness and to reconsider dementia as a situation of opportunity.

An EC involves a sudden, unexpected, uncontrollable, chaotic mutation that causes a break in continuity of the person’s existence. It is a manifestation at that critical moment in which there is a lack of adaptation between the person, his or her way of life, and environment. This crisis affects all the person’s external references and is expressed through the psyche by a feeling of instability, which affects both behavior and worldview. When this lack of adaptation reaches a limit then the process of rupture comes to a head, and this is the true meaning of the term emergent crisis.

Clinical experience shows that this rupture in a person’s life affects his or her emotional, mental and physical situation. From the perspective of EC we see that once the idea of an idealized past has been rejected, life events can provide an opportunity for change.

The EC is based on the following two principles:

1. *The differentiation process*, which forms part of the evolutionary process (Spencer, 1855). The development of the human being’s process is based on the need to be different. This affects decision-making, which is designed to ensure survival as a living being firstly, and then as a differentiated being in evolution.
2. *The positivization of the pathological*. Once the life process is seen as a process of differentiation, the symptom as a point of attraction is depathologized. The rupture, as the source of agitation and instability, is not degraded. This is because it represents a way to provide differentiation and healing by allowing the emergence of new life orders that will contribute to the person’s evolution. This complex process is resolved in the coherence existing beyond the point of greatest psychosomatic agitation, when the patient discovers self-organization.

Possibly the maximum expression of the positivization of the pathological is the transformation and evolution of the individual, which stems from the rupture that certain *sub-orders* produce in the *dominant order*. This process of dissipation acts on the outdated order and, after bifurcation, transforms the system. Consciousness may play a significant part in this transformation as an evolutionary process, which in turn generates complex states of consciousness that appear as

the individual gradually connects with his or her new environment. This is perhaps Nature’s way of providing humans with a channel for evolution.

Development of the Emergent Crisis

From the perspective of the EC, healing represents a journey to the psychological self where the entire mystery of the being lies in a revolution of the concepts of life and death as symbols of transformation towards an evolution involving the entire mystery of existence. There is no sickness, but rather ignorance and perhaps misunderstanding in the face of responsibility. In reality the so-called illness constitutes a transformative knot, an opportunity that signals sensitivity, rupture, and a possible decisive bifurcation, a coherence that implicates the person in Nature’s universal transformative rhythm. Not understanding this process could have led us to establish a negative culture of sickness and death rather than one of transformation and life.

The challenge of our research lay in answering the following question: Is it possible to establish an architecture of the chaotic process through the dissipative structures proposed by Prigogine (1984), by attempting to channel them into the creation of a formula applicable to psychology and psychotherapy?

According to Prigogine (1984b, Prigogine & Stengers, 1984, 1988), all open systems can exist in three regions. The first region comes from a thermodynamic balance in which there are no differences. The second, stemming from the first, involves a greater imbalance that leads to the third region, where the condition of maximum instability produces new structures. These are the dissipative structures, home of the permanent dissipative processes.

During the course of our research, we came across the possibility of articulating a “dissipative order,” based on Prigogine’s (1984) theories, that could help us to understand the psychopathological phenomenon we have termed a *dissipative vortex*. The word *vortex*, as noted, means whirlpool or whirlwind (from the Latin *vertere*, “to turn”); it defines a chaotic structure that gives shape to the flow of energy, generating a continuous connection between the exterior and the interior. Table 1 contains a list of the vortices that together constitute a dissipative process. Rather than being read progressively from A to E, the vortices should be seen as interrelated processes occurring simultaneously. The present article discusses Vortex A (Sensitivity-Instability-Bifurcation) in depth, examining its application in Genís’ therapeutic

process. Vortices B to E are touched upon in the section on *co-adjuvent* processes.

Dissipative Structures of the Personality

We believe the psychic process can be explained by understanding that the following can be found in all human beings:

1. *Behavioral processes manifested through negative patterns of behavior* (fractals), which are complex units that often act outside the subject’s consciousness. These patterns or fractals constitute the dissipative routes of characters (DRCs), which allow one to access the dissipative structures of psychological characters.
2. *Traumatic processes considered to be wounds or painful situations in the patient’s history*. Psychic wounds are continually interacting in the present and are expressed through the dissipative routes of traumatic processes. Traumas constitute the events that make up the dissipative routes of events (DREs). Both behavioral and traumatic processes stem from the shadow of memory.

Due to the fact that the EC carries with it the natural transformation suggested by Prigogine (1979), we refer to the following two developments of the EC as dissipative structures. We will deal with them in two sections, the first covering behavioral structures termed

Table 1.
Vortices Forming a Dissipative Process

VORTEX A	1. SENSITIVITY 2. INSTABILITY 3. BIFURCATION
VORTEX B	1. IRREVERSIBILITY 2. EVENT 3. COHERENCE
VORTEX C	1. UNPREDICTABILITY 2. COMPLEXITY 3. SELF-ORGANIZATION
VORTEX D	COST
VORTEX E	ATTRACTOR. FRACTALS

the armor, and the second covering *traumatic structures*, which are indissoluble.

The Structure of the Armor

Negative patterns of behavior. The patients' suffering becomes concretized in fractals or negative patterns of behavior (NPBs) through the therapeutic process. The fractal (Mandelbrot, 1977), as a unit in the geometry of irregular forms, is the iterative part in a process of self-similitude in an infinite evolution towards totality. This self-similitude is revealed in NPBs, characters, and vortices. It is important to establish that a fractal is a complex unit of behavior and as such constitutes a significant system of experiences that include emotions, ideas, and forms of expression. In other words, fractals/NPBs take the reins of one's being and constitute a psycho-corporal unit that is far from being a domino in a simple behavioral circuit. This figure of the pattern of behavior is inspired as much by modern psychology as by the approaches offered by Bob Hoffman (1979) and Ramón Carballo (1999).

Awareness, the essence of the therapeutic process, leads to realization and a perspective of disidentification that allows the patient to recognize these patterns. Based on problem-centered therapy (cognitive-behavioral therapy, Palo Alto brief therapy, Gestalt therapy, mindfulness, self-observation without judgment, acceptance and commitment, etc.), after one or various sessions, the central problem present in the person's entire life is determined. This is the attractor, the behavior pattern par excellence. The aforementioned techniques of self-perception lead to the paradox that must be resolved in therapy of how to see that with which one sees, which means seeing and seeing oneself at the same time. For this we rely, as we have established, on processes of no-thought, and centers of bodily attention such as *hara* (Dürckheim, 1956/2004). Taking one's vital attention away from the cortex, these processes facilitate a relaxation that diminishes the redundant interior dialogue, the cause of much neurosis, or makes it disappear.

Patterns, with their anchor in the body and mind, respond to a deeper nature, and do not remain in simple vicarious learning. Connected to traumas, patterns compose an intricate and complex psycho-corporal network to which strange elements, difficult to define, of the person's unknown zones are linked. In clinical practice we have found the existence of traumas where the perinatal past and biographical past are revealed, and

the person is able to remember, with subsequent proof, the existence of traumatic periods throughout his or her genealogical life. These discoveries are directly related to familial behavior patterns, to the family norms and story.

Patterns of behavior could exist in the genealogical chain as an effect of Nature's law in the form of an evolutionary fixation process (a possible psychological DNA, as it were). They could even have an effect at subtle somatic levels, accessible through psychotherapy. If one could thereby access the genetic level, then genes would not be the causal panacea but rather part of the temporary crystallization of an individual's evolution within the totality that he or she represents.

Characters. Our clinical work developed a network of these fractals or NPBs that make up characters, the principal ones constituting the patient's armor sustained by the most important pattern—the nucleus attractor of the conflict—and key to that armor (see Figure 1). For pragmatic purposes and therapeutic effectiveness, it is convenient to work with two to four characters maximum, composed of approximately ten patterns that constitute a possible route towards the attractor.

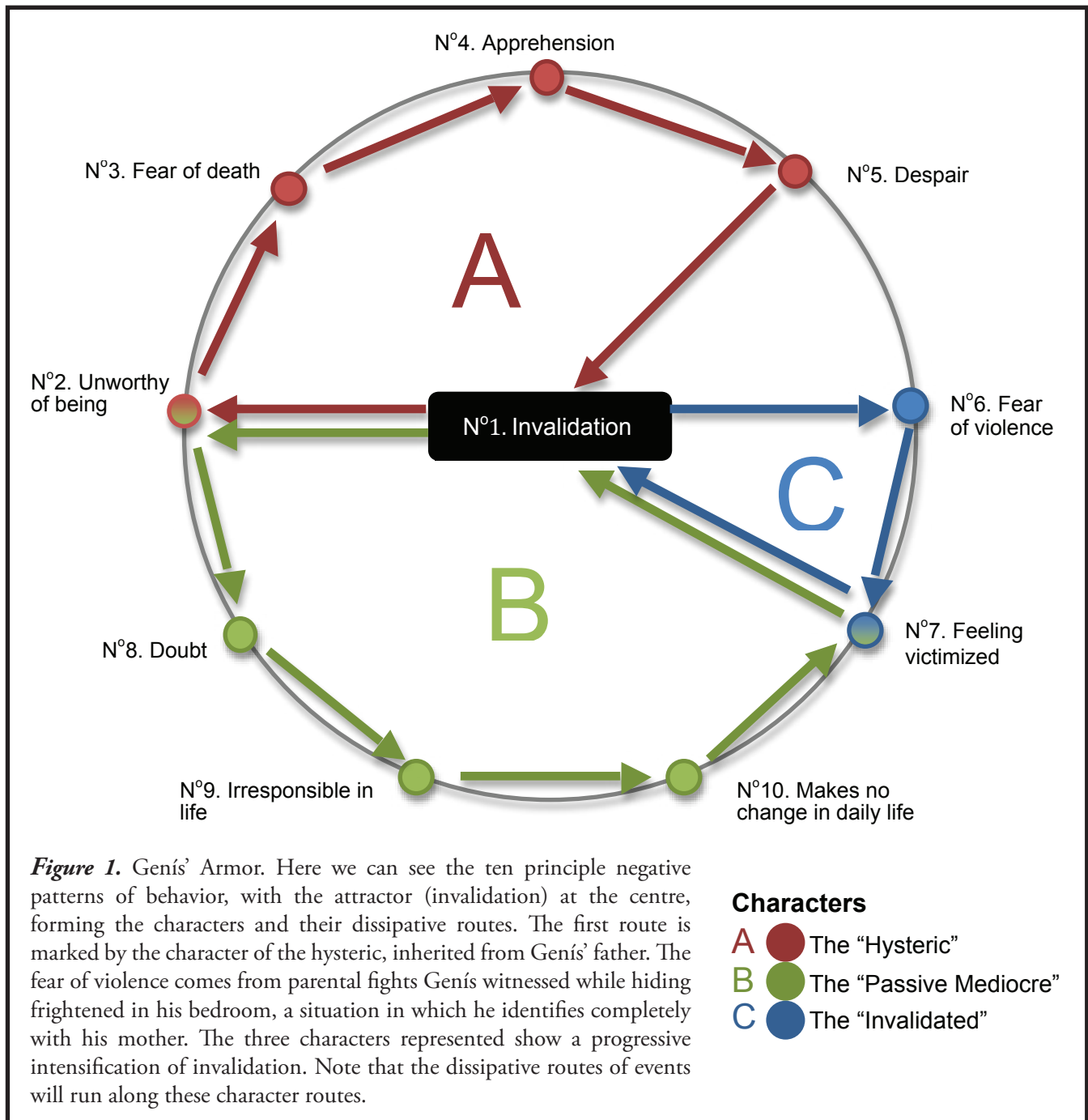
The dissipative routes of characters (DRCs). The DRCs begin to establish themselves based on an anamnesis. They are made up of the patterns that define each character and it is important to note that each DRC starts and finishes with the attractor.

Complexity reaches such a limit in the human psyche that we believe the DRC is the most frequent route of all those possible around that character, and that the jump from pattern to pattern, rather than explaining a causal fact, in reality explains a guide configuration. Furthermore, the DRC will be the channel for infinite traumatic routes (dissipative routes of events). Continuing in its progressive intensity by way of centripetal movement, the DRC leads to a crisis or chaotic situation culminating in a chaotic explosion—a vortex that returns to the attractor.

The armor. The armor is a diagram in which the NPBs are configured, based on dissipative processes, around a nucleus, the *screw* of the armor. This nucleus is an attractor, as defined in chaos theory, since it makes the entire system turn—become attracted—around it, and since there has been a previous process of identification of the same with the problem. We have seen, in clinical practice, that numerous types of

armor exist. The attractor-screw, together with the rest of the patterns, corresponds to a partially Reichian (Reich, 1980) concept that we have also adopted as it represents a psychic form marked on the one hand by protection towards the outside, the hard-shell, and on the other by constriction, the corset towards the inside of the individual. Both produce enormous quantities of anguish, violent projection, and panic attacks.

Graphic example of the armor. After a complex process, Genís has developed his DRCs, which he recognizes to be present in his personal life and family. The three characters in Fig. 1 (the hysteric, the invalidated, and the passive mediocre) may show a progressive intensification of *invalidation*—the attractor. Invalidation experienced traumatically pushes Genís into crisis.



The hysteric. Table 2 presents a summary in Genís' own words of the definitions of the NPBs that make up the hysteric character and its dissipative route. According to the patient, this is the most important character as it is the one that impedes the serenity necessary for developing clarification on all levels: personal, sexual, work-related, and artistic. This psychological chaotic channel threatens the individual's stability, as the patterns interpenetrate in the hysterical process, causing the patient to lose all his references, a situation that pushes him to despair and collapse. The resolution of this breakdown through bifurcation would mean healing.

Traumatic Structures

The nature of traumatic processes (events).

In clinical practice we have encountered events that mark the development of the person, and which we believe can offer explanations regarding the emergent crisis (EC). In effect, these events have a relationship to traumatic aspects. So-called life events make reference to psychosocial facts that alter the psychological and psychosomatic functioning of the organism. The origin of this denomination comes from the biopsychosocial focus of illness. Change is the principal defining characteristic of life events, in the sense that they imply a change in the usual activities of the individuals who experience them. These events can be extraordinary and extremely traumatic, such as near-death experiences, or the experience of limit situations, although at times they

are more or less normative, as in the case of marriage, divorce, or job loss. Everything seems to start from an inadequacy between the person and the type of life he or she leads. Table 3 lists possible antecedents to traumatic processes/ECs. From the perspective of the EC, these concepts take on a broader significance directed at the search for meaning in life.

The dissipative routes of events (DREs). Daily life situations give rise to numerous DREs (traumas), which flow through the DRCs composed of fractals. Here we will limit ourselves to developing one of Genís' traumatic situations, "the threatened artistic exhibition," which behaviorally expresses itself through the DRC of the hysteric. Table 4 shows how this event/trauma is carried out over the patterns that make up this character. It details, in Genís' own words, the way in which he experiences the DREs in his daily life. The trauma originates deep interior convulsions whose progressive way out is the fractals, the DRCs, and the armor.

Dissipative Application of the Vortices

Having examined key processes, we are now going to explore how to combine theory and practice, using the case of Genís as an example. Here we will clearly see how NOSCs appear, involving perinatal, biographical, and transpersonal processes. Perinatal processes have been little studied, but we could consider them to be metaphorical expressions of a person's psychological and evolutionary stages. In all our years of clinical experience we have at no time aimed to glorify pre-personal situations.

Table 2.

Synoptic Chart – The Hysteric. Summary of the definition of the patterns comprising the dissipative route of the character, as related by Genís.

INVALIDATION	Collapse and impotence in the face of life. Annulment of opportunities.
UNWORTHY OF BEING	I don't deserve to exist; I don't deserve opportunities.
FEAR OF DEATH	If I don't deserve life, only death remains. Contradiction; fear in the face of death.
APPREHENSION	Unfounded fueling of negation. (Fearing death).
DESPAIR	Everything is bigger and more important than me. I lose it.
INVALIDATION	Faced with the impossibility of living, invalidation is in a state of self-feedback.
	CHAOTIC EXPLOSION. TOTAL COLLAPSE.

Table 3.*Traumatic Events as Possible Triggers for Emergent Crises.*

THE MEANINGLESSNESS OF LIFE	Encounter with the void. Established model of happiness unfulfilling. Existential (sometimes philosophical-mystical) and critical crisis. Person cannot adapt to the existing societal model. Disillusion and depression. Withdrawal from relationship to outside world.
ADDICTION TO CONSUMERISM	Person who has bought everything and is not satisfied; no alternative; depression. Existential type of crisis appears; leads to the meaninglessness of life (above).
LIMIT SITUATIONS	Events that have reached the maximum point of existence and resistance. Result of accidents, violent events, or diverse situations ending in despair (break-ups, failures, conflict); person loses control over his/her own life for a limited time.
SITUATIONS INDUCED BY MEDITATION	Appear in people who suddenly find themselves in an interior explosion that displaces them from their space-time coordinates. Resulting fear of losing control, possible suicide. Energetic openings: Shaktipat, Kundalini rising, etc.
SITUATIONS INDUCED BY DRUGS	Processes, similar to above, unleashed by perception-altering substances. Crossing over to archetypal worlds (collective unconscious) uncontrollable by the rational mind; fear often ensues. Intense suffering; brushes with tragedy.
THE SEARCH FOR RISK IN SPORTS	Attraction to extreme risk, overcoming limits, brush with danger/playing with death; suffocation of everyday life; need to escape from unbearable monotony; leads to limit situations.
DEATH	Near-death experiences; death of a loved one. Often leads to meaninglessness of life, especially if sudden. Cultural lack of contemplation/acceptance of death leads to disorders; can produce uncertainty in individual's entire life.
AGGRESSIONS	Situations of rape, abuse (including infantile sexual abuse), or any violence, whether familial or other. Produces a rupture that can lead to new approaches to life; can be source of paranoia and continuous unfounded fears.
"INSANITY"	Spontaneous phenomena that break with the reigning model of reality; situations not understood in the space-time-material dimensions; "hallucinatorily" experience; hypnagogic images, monsters, mythical beings, infernal spaces; symbolic manifestations of the unconscious. Total remodeling of the person can occur.

Table 4.

Synoptic Chart – The Threatened Artistic Exhibition. Summary of the dissipative route of a (traumatic) event carried out over the dissipative route of the hysteric character, as related by Genis..

INVALIDATION	ART exhibition interview; attractor and screw of the armor. I don't discuss the price. Later I give an incorrect budget. Enormous insecurity about myself.
UNWORTHY OF BEING	Later they offer me less money or nothing. I feel unworthy of the exhibition; I haggle. Confusion.
FEAR OF DEATH	Fear of failure, since it means no remaining budget to continue the group.
APPREHENSION	Frightened phone calls to the organizers; I magnify the obstacles they set; confusion and anguish continue to be triggered; insecurity also increases.
DESPAIR	Here the hysteria is more powerful than me; I am overcome by it; I give all up for lost.
INVALIDATION	I find out that my boss has made the exhibition impossible in the interest of my exclusive dedication to his company and not to artistic activities. Agitation and anguish reach culmination; my chest almost explodes; total invalidation; I do exercise; I get scared; tears and early morning calls to a friend.... TOTAL COLLAPSE.

The vortices help one to understand the nature of the phenomenon, the EC. The psychologist suggests the *chaotic channel* that leads the patient to see the chaos-crisis combination as an opportunity for order-change, and accompanies the process governing the dissipative laws.

Vortex A: SIB Process (A Non-Directive Process)

Vortex A, axis of the EC process, starts with *sensitivity* to the trauma, a psychic quality of the human being, and continues with *instability* until it reaches a decisive *bifurcation*, considering the psychopathological process to be edifying, restructuring, and not degrading to the patient.

Sensitivity (Figure 2). Lorenz's (1993) concept of *sensitive dependence* takes on a greater dimension in human systems and in their subtle psychological processes. Differences in living, sensitive beings give rise to differences that represent extraordinarily complex qualities unique to the human condition: feelings,

ideas, desires, willingness, perceptions, awareness, and creativity. Sensitivity allows the system to attract energy from its surroundings and, as a psychic, subjective and differential quality, sensitivity means that the living being has the capacity to receive impressions. This permits the beginning of essential nonlinear processes.

As discussed by Prigogine and Stengers (1988) in relation to physicochemical systems, as well as by Lorenz (1993), sensitivity leads to responsiveness and responsibility, which in turn gives the living being the capacity to decide.

Sensitivity develops through the emergent. It can be viewed as the emergence of living systems, referring to the faculty of feeling, of being affectively moved. The emergent is the capacity that enables the human being to deploy a creative approach when faced with a psychological crisis. This may well be the key to therapy: something that promotes a psychotherapeutic process that is not a simple readaptation to the past or

present, but rather an emergent process of restructuring and self-organization (Masterpasqua & Perna, 1997). The idea of sensitivity as a natural emergent fact is seen in authors such as Popper (1982) and Monserrat (1987), and for Bertalanffy (1975), emergence is characteristic of open systems.

Genís' sensitivity (Figure 2) is possible thanks to the "emergence of the living" (Prigogine & Stengers, 1984, p. 40; cf. Prigogine, 1997) in his therapy sessions. In essence this means being sensitive to differences in order to generate differences. One must therefore begin therapy by recognizing the sensitive dependence on the initial conditions. In the hysteric character, these correspond to Genís' fear of (sensitivity to) his boss and of his father, which produces invalidation as the nucleus-attractor



Figure 2. "Sensitivity." Drawing. Represents a process of sensitivity, a perinatal experience within the mother at a moment during a difficult relationship between the parents with daily mutual aggression, as related by the patient in therapy. The scream makes clear the depth of the trauma and the comprehension of which the patient speaks. Genís feels this experience is that of generating his self-invalidation, negation and collapse in his daily life. The drawing symbolically "fixes" the sensitivity of the non-linear dynamic.

of the armor (Figure 1). What emerges is the patient's recognition of his discomfort as an overwhelming fear of the male authority figure. This process is characteristic of sensitivity and has a positive connotation as it means that Genís is able to impose limits, names, to establish a

difference, a perspective, a form of recognition. In other words, he can establish perception and disidentification. What enables him to do this is the "emergence of the living" (Prigogine & Stenger, 1984, p. 40) together with the emergence of the new, although these may appear in the guise of feelings of inferiority in the face of authority. These feelings pushed him towards the attractor—invalidation—as the nucleus of his state of mind.

Awareness of the process of agitation as one of healing and newfound creativity has enabled Genís to approach the process as a solution and not as degradation or as an illness. He now recovers the ability to respond as an agent of his own healing and not as a passive object suffering life's adverse circumstances. This is a creative attitude to crisis rather than a pathological and defeatist one.

No control. Based on a strategy of *no control*, far removed from restrictive (sometimes artificial) forces, psychological behavior can move far-from-equilibrium, thus freeing itself from narrow cause-effect reactive processes. Therefore, if the living being is a being-in-process, an *a priori* diagnosis cannot be considered to be an unshakable objective truth.

Sensitivity shows that patients are in contact with themselves; they are alert, even if it is in the form of suffering. It opens the door to psychological creativity, which will emerge in the form of psychocorporal crises in the therapy room through the exteriorization of NOSCs. Patients express themselves freely in experiential work, in the form of catharsis, through screams, panting, sweating, and so on, breaking the space-time control and leaving the path free for the unimaginable. Scenes from the remote past, perinatal processes, and the like, will be relived, as expressed in the patients' drawings made after the sessions. These are natural processes that open up a dialogue with one's inner life. For Prigogine (1996/1997; Prigogine & Stengers, 1984), the artificial is determinist and reversible, whereas the natural contains essential elements of randomness and irreversibility. "Man's new dialogue with nature" permits the creative differential fact, and even the strategy of no control, based on sensitivity, offers autonomy for the system (Prigogine & Stengers, 1988).

Sensitivity opens the door to the subjective. When the human being is open to transformation and committed to the process, the emergence of the new takes the form of a crisis. If accepted, this crisis can be seen as a change leading to psychological transformation through pathology (from *pathos*, "suffering"). This means that the patient must integrate the differentiating subjectivity

in therapy, and maintain and combine it with other subjectivities and with his or her surroundings. This requires a change in attitude, an opening-up of both the patient and the psychologist.

This process implies intimacy, responsibility, responsiveness (the ability to respond), acceptance and commitment; that is, autonomy. Something had been released in Genís that enabled this sensitivity and awareness. Only he received it in the way he did; in other words, this is an intimate and subjective process that gives value to the self.

We agree with Prigogine and Stengers (1988) that the intrinsic activity of the system generates the type of intelligibility necessary to understand its possible histories. According to these authors, one is taken into Bergson's realm of the "intimate" regarding the feeling of one's own evolution and the evolution of all things.

The awareness of the process as a dissipative key implies a qualitative transformation. Being sensitive creates a union between individuals and their activity; rather than stationary beings, sensitivity makes them into beings-in-process who establish their own plan of action in an ongoing creation of connections between themselves and their environment. Once he becomes aware of his own fear, Genís positions himself in relation to his possibilities, and thus is able to stop being manipulated. This situation gives him the capacity to decide, and this is the key to his psycho-healing, enabling him to take a stand in relation to his work and family. By being in charge of his own crisis and trusting in the natural awakening of his interior wisdom he is able to be different/respond differently, which in turn would configure his individuality in a psychological transformation. Through *sensitivity*, through that commotion, that "loss of sanity" (Genís' words), he is released from the cohesion of the "precarious stability" that is so restricting for him.

For Prigogine and Stengers (1975), sensitivity is the gateway to open systems. They advocate the notion of the historic man, the man in flux, a force for improvement and projection. He must break with nature seen as a passive material subjected to determinist laws that have no possibility of innovation and improvement. This opening-up, according to Prigogine and Stengers (1979, 1984), is represented in the complex nature of the brain and its sensitivity to the world surrounding living beings. The history of life may be read, at least in part, as the history of a multiplication of sensitivity.

Instability (Figure 3). The psychological instability that arises with sensitivity involves a progressive loss of personal equilibrium together with an unsustainable situation of neurotic normality, which is clearly useless for dealing with this symptomatic process. Thus a rupture occurs in the individual's life process, taking the form of a psychological crisis or chaos.

Instability is inscribed in nature, making



Figure 3. "Instability." Drawing. Sensitivity increases. It is interesting to observe a ring compressing the chest, which happens to be a bodily point the patient complains about; in addition it presents an emotional compression. There is also a type of black rat enveloping the patient, which he was not aware of until it was shown to him. What is important in this drawing is that Genís identifies it with the pattern of invalidation and traumatically with feelings of compression, asphyxia, the impossibility of valuing himself, and so on. These feelings are present in his daily life, above all in moments in which he feels compressed and lacks the possibility to act. Thus we begin to establish a possible correlation between pattern and trauma.

crisis possible. Crisis should therefore be understood as a natural form of expression and incorporated into the psychological process without degrading it. "Acute and chronic episodes of personal disorganization are not necessarily enemies of mental health and overall well-being" (Mahoney & Moes, 1997, p. 187). Crisis provides the key in psychopathology and psychology. The challenge lies in knowing whether psychology can assume the nonlinear process through sensitivity-

instability, which tends towards innovation-healing (the positivation of the pathological).

Instability is present in the entire sequence of patterns accompanying Genís' hysteric character until reaching the bifurcative key that will give meaning to his sensitivity, instability, and definitively to the chaotic process. Genís defines instability by referring to his psychological character and attitude as a continuous pattern-by-pattern *corrosion*. As has been seen, this process represents an expansion that gradually establishes the traumatic sequences that become viable in the DRC.

Traumatic patterns and situations as emergent sub-orders break the reigning order, represented in Genís' case by submission when faced with the authoritarian position of the father/boss. This produces a psychological imbalance that enables a new order to arise: a more autonomous way of life. In fact, for Prigogine and Stengers (Prigogine, 1972; Prigogine & Stengers, 1984) human beings function in conditions of imbalance. What they (and we) are most interested in are the evolutions, crises, and instabilities (Prigogine & Stengers, 1979). Prigogine (1996/1997) maintained instability to be an essential condition for the birth of life. Nonlinearity is a source of evolution.

With the appearance of the symptom, instability triggers a differentiation process in conjunction with symmetry-breaking. Once again one is faced with a no-control situation. This leads us to frame our own observations in therapy within a nonlinear model based on evidence that the psyche fluctuates. A progressive syndrome of insecurity and instability appears in the individual, followed by a sudden crisis that destroys the established order of the system. In Genís' case the symptom, triggered by the anxiety generated by a project in jeopardy, is specifically expressed through symmetry-breaking in the form of different fears, heart palpitations, and insomnia. For Prigogine (1994/2002) instability, following Aristotle, is located in a world of organization removed from Euclidian space. These concepts connect with critical dimension (Prigogine & Stengers, 1979, 1984).

It is precisely through psychological instability that one attains healing. The symptom is the origin of order through the integration of psychological suffering. Through the chaotic therapeutic process, the individual must (a) assume the emergence along with the non-validity of his or her known parameters, which are no longer useful for integrating it, and (b) listen to, be

sentient of, and assume the psychic turbulence that ruptures those parameters that can no longer contain the new forms arising from it. Psychology can help in finding a path through these differentiating processes.

For Genís, an integration of his own turbulence is already beginning. The emergent crisis tends to accompany the challenge, and this involves a process of innovation. Genís admits that certain lifestyles are no longer of use to him, and alludes to his psyche's urge to rebel against submission and paralysis. Paradoxically, this crisis marked by chaos and differentiation leads us to a new order (Prigogine, 1983; Prigogine & Stengers, 1984): the non-equilibrium of a differentiating force creates organization.

Bifurcation (Figure 4). Genís finds himself in a limit situation. Small bifurcations sometimes occur in therapy sessions in processes during which all the patient's distress and anxiety is allowed to emerge. These processes follow their course inside and outside therapy.



Figure 4. "Bifurcation." Drawing. This clear example of bifurcation expresses a process of resolution. We see that the past, the structures that are no longer useful, in the form of an archaic and ancestral shell, is being overcome and transformed into new renewing structures. Through bifurcation a new being emerges that is reflected in Figures 5 and 6.

Genís applies the therapy protocol, and is a witness to his own process, as though waiting for his own psyche to compose and mature the right path and the right decisions.

When we take a system far-from-equilibrium, it enters into a state of maximum instability in relation to the perturbation. The exact point at which this occurs is called the bifurcation point (Prigogine & Stengers, 1984). Bifurcation culminates in a cataclysmic rupture with everything that has gone before. It involves the transformation and healing of the dysfunction in the individual. Suffering reaches an unbearable level, and goes beyond it, with repercussions on the totality of the person.

Bifurcation and nonlinearity. Bifurcation, as a rupture, is the base of nonlinear systems. One of the keys of psychoanalysis is the *fault in the discourse*, which is the expression of the nonlinearity of language. *Autopoietic systems* (Maturana & Varela, 1984/1998) are also based on nonlinearity. Gary Burlingame, Addie Fuhrman and Karl Barnum (1995) viewed therapy groups as *nonlinear dynamic systems* whose communication must be analyzed based on chaotic patterns. For Allan Combs (1995), nonlinear changes have a rhythmic, uneven, and irregular cycle. Bifurcation for Gilgen (1995) and Thomas Gentry (1995) is a rupture of the linear process, and Prigogine and Stengers (1984) viewed this rupture as unpredictable. Nonlinear processes—fundamental in dissipative structures—allow this maximum symmetry-breaking, which in turn makes transformation possible (Prigogine & Stengers, 1984). Prigogine (1984) even

reminded that Pasteur saw in symmetry-breaking the true characteristic of life.

Beyond the limit. Returning to the previous point about no control, which can enable the patient to free him- or herself from restrictive forces. There is a struggle of unstable proportions between evolutionary and constrictive tendencies at a psychological level, after which the individual must find the way out. It is our understanding that in living beings in conditions of maximum instability, and as a result of the therapeutic process, an increase in the processes of release, perception, communication, opening-up, memory, and so on, will occur.

Possibly in certain cases the person or group could be helped towards enhanced awareness by increasing the psychic turbulence provided by bifurcation. For example, when Torre (1995) mentioned the subject, he proposed nonlinear techniques for chaos such as *activation* and *restriction* with the active participation of the therapist.

In the case under study, Genís, in the midst of chaos, and seeing his entire personal project collapsing around him, no longer knows what to do. He experiences small conflicts at home, where he lives with siblings, not parents. His process begins to undergo important changes that arise from a personal settling-down after the night of total collapse (crisis) described in Table 4, which was worked through in a long session. Not long after, Genís arrives at his therapy sessions with important decisions: having consulted with his siblings, he has decided to live alone. He says that he is no longer afraid, and that he needs space. He has had a confrontation with his boss at work; he has changed jobs, and has been given a substantial raise. His own parents and siblings begin to see him in a different light, and their worry turns to admiration when they see how he has progressed psychologically, artistically, and financially. His mother goes into therapy.

Appearance of new states (Figures 5 & 6). We understand this point as the moment at which we begin to see healing, transformation, and a new psychological state involving perception, comprehension, and awareness. This is a natural path in which the old ways are consumed and burnt up, thus purging the system until it is transformed.

These new states involve the entire system (Prigogine & Stengers, 1988). In some of their statements, Prigogine and Stengers (1975, 1979, 1984) declared that



Figure 5. This drawing indicates a shamanic type of transpersonal resolution.

beyond the threshold of instability, the system can no longer tolerate limitation, and organizes itself beyond that limitation. Matter acquires new properties, such as communication, perception, and memory.

Bifurcation involves memory. Prigogine and Stengers (1984) spoke of the formation and sum of vortices as a way of defining the material process with the possibility of a temporary memory of several bifurcations or ruptures that allow the system, whether living or non-living, to evolve. At this moment Genís is aware of all his previous processes, his childhood and family experiences, in a cathartic process of memory. Each NPB, and each traumatic experience (event) is sensitive to all the others and forms a unit that tends towards resolution in the present.

Heat as a metaphorical gradient imposes a new language. Prigogine and Stengers (1984, 1988) believed that the physical process appears with a difference in temperature, as this is the origin of the appearance of the vortices. Heat as a metaphorical gradient is very significant in therapy. The very semantics of the word *thermodynamics*—heat and movement—carries the connotation of crisis. Heat, fire, burns old residues and encourages the patient to go beyond the feared crisis point. Strangely enough, we find that physical and emotional heat of the *abreactive* kind preceding a reaction appear in these processes of resolution. As we have observed in group dynamics recorded on video and in diagrams (e.g., Fig. 1), heat—the gushing turbulence of symptoms and situations that appear and disappear in minutes in therapy—can be seen as the metaphorical cremation of traumatic situations.

We believe that the dissipative vortex—the SIB process—could be a key bridge in the comprehension and transformation of human beings and their nonlinear processes. These range from the simple fault in discourse through to the complex symptoms of psychosis. This vortex opens the field to self-organizing processes.

Genís has now connected with everyday healthy communication instead of living within his previous neurotic confinement, which he was able to integrate when he went “beyond the limit.” These are moments of expansion for him that he communicates to us time and again. He is profoundly grateful and feels too that he has achieved a sense of security that will enable him to cast off that last protective shell of the family: the fear he still feels towards his father. He decides to meet with his father gradually. After some of these meetings,



Figure 6. This drawing expresses a *gynaecium*, which indicates new openings.

Genís begins to perceive his father as a person who needs help, and he has the impression that the roles have been reversed.

At the point of greatest instability, and using a process that requires will power and consistency from the participants, an *expansion of consciousness* occurs. This produces the following:

- I. Maximum agitation. The problem emerges in all its rawness.
- II. A breaking down of resistance and the resolution of fluctuations. A loss of inhibition occurs and the patient moves beyond. A no-control situation appears and the patient opens to transformation. His entire subjective world opens until he reaches bifurcative rupture.
- III. An increase in memory with reference to this route.
- IV. Heat and the cremation/dissipation of old structures.
- V. A peaceful void within the individual, produced by the above.
- VI. The unraveling of the COEX and the release of information.
- VII. The experience of transcending the “human mold” albeit transitorily (Almendro, 1999). This is evident in shamanic contexts, although previous preparations appear to be necessary (Almendro, 2000, 2008b).
- VIII. A spirit of service together with an inexplicable understanding of the meaning of the world, which emerge after this passage through pain. The latter is experienced as a feeling of having

touched the inapprehensible character of “the real” in a connection that extends from the temporal to the intemporal.

IX. The spontaneous appearance of mindful states.

One must not forget that many of the representations of the transpersonal movement are in it not only for theoretical reasons but also because of previous personal experience (Almendro, 1994). At this point some of them also reach a transpersonal resolution expressed in an expansion of consciousness. Thoughtful facial expressions appear, along with healing tears, Zen silences, and a thorough review of their personal life.

Coadjuvent Processes: A Brief Overview

Coadjuvent processes are those that facilitate the realization of the SIB process. Furthermore, they contribute to the system constituting itself as non-linear and open. This will be illustrated by four specific vortices.

Vortex B: IEC Process

Vortex B (*irreversibility–event–coherence*, or an IEC process) is necessary for an event to occur and acquire coherence. Each irreversible event is an irreversible support for the subsequent one. Thus healing creates new orders beyond entropy, which is healing and evolution, rather than the definitive destruction of the system.

Irreversibility. Irreversibility in the psychological process means that each psychological sequence (in this case a pattern or a traumatic fact) gives way to and provides support for the following one. This is based on the principle that “sensitivity” implies differentiation in order to achieve meaning, the key to this difference being its irreversible character. Genís affirms that he cannot nor does he want to return to pre-critical states, since he understands that the crisis existed previously in the form of a threat. Furthermore, the crisis, pattern by pattern, trauma after trauma, causes many previously unknown impediments to resolution to surface. Irreversibility gives meaning and value to symmetry-breaking, and indeed to the entire psychological process; without it, the process would be absurdly gratuitous and suffering would be worthless.

Event. The event provides meaning in therapy. It marks the value of the psychological fact—emergent or resolute—which may at no time be considered absurd. Thus it permits a “consistency” in space and time and in the patient’s life.

Coherence. Coherence is the validator of the dissipative psychological process. It is manifest in the self-organizing process that appears as we learn to connect with the environment.

Vortex C: UCSO Process

Vortex C (*unpredictability–complexity–self-organization*, or UCSO process) is indispensable for an open and non-linear system to be generated. It belongs to complex systems, which provide self-organization.

Unpredictability. It has already been seen that unpredictability gives meaning to irreversibility, as the valid character of the event implies that it cannot be predetermined. It is through the unpredictable that chaos leads to “the new.” Dora Fried Schnitman (1994/2002) reaffirmed unpredictability as a consequence of major complexity and argued that the new psychotherapeutic designs recognize the inevitable unpredictability of complex systems. She added that the metaphors of personal, family and socio-cultural development—often conceived from a determinist base—that propose progressive changes towards improvement for humanity are being replaced nowadays by the recognition of *unexpected crises*. The unpredictable gives way to the emergent, to a new organizing principle that arises from the unexpected crisis. From a neurological point of view, Maturana and Varela (1984/1998) stated that emergent operations are fundamental for the operation of the brain.

Complexity. Humans live in a complex world that has the capacity for self-organization. Therefore complexity and self-organization are containers. There may have been a certain historic fear in approaching complexity, as it puts in doubt our limited capabilities in the face of uncertainty and unpredictability. For Burlingame et al. (1995), in order to explore complexity, one must take into account disconnections, empty zones, and interactive dynamics. For example, Perna (1997a, 1997b) spoke of a complex adaptive system based on increasing levels of complexity between the regressive processes and the adjustments that permit evolutionary healing. Complexity, according to Brabender (1997), allows permeability at the limit with our surroundings and is therefore the key to self-organization.

When approaching complexity, one discovers more questions than answers: How is one to approach psychopathological complexity and the underlying order in complex psychological processes; how can simple psychological processes become complex. There

is one consolation: The important aspect of complex systems is one's limited capacity to understand them (Prigogine & Stengers, 1979, 1984). The complexity of the transpersonal manifested in the inapprehensibility of the being is shown in all its extension.

Self-organization. The result of the healing process is self-organization—resolutive dissipation in the face of redundant and pathological fluctuation. It takes the form of a new order that provides the system with an essential autonomy. Chaos is a necessary prerequisite for self-organization (Lewis & Junyk, 1997; Masterpasqua, 1997), a concept also held by Prigogine (1994/2002). As has been seen, self-organization permits permeability, and thus communication within the system (Brabender, 1997; Derrickson-Kossman & Drinkard, 1997).

Self-organization is so important for Prigogine (1984a) because it is involved in a fundamental way in the transition from chaos to order. For Maturana and Varela (1984/1998; Varela, 1988), self-organization, starting with the concept of *enaction-autopoiesis*, arises from an overall cooperation that emerges and produces successive structural connections. Many researchers in nonlinear systems share this idea, and there are studies that provide initial demonstrations of emergence through self-organization (e.g., Stephen, Dixon, & Isenhowe, 2009).

Self-organization is reflected in these harmonious, creative ways, and through autonomy, in the expressions of inner psychological states. Genís relates this with feeling more sure of himself in the conflictive situations currently taking place in his artistic, work and family life. This autonomy has led him to find his own apartment, new relationships and an appreciation of life, which he says he wants to convey to the therapy team and to the entire universe. This new life has allowed him to overcome his collapse. Figures 5 and 6 are expressions of this resolution.

Vortex D: Cost

Vortex D (*cost*) means the loss of old parameters. It is our understanding that in psychotherapy the notion of cost is connected to the loss of old stabilities, changes in way of life, break-ups, and so on: the abandoning of old life systems, which means leaving places and situations in order to access the creation of new ones.

Vortex E: Attractor and Fractals

Vortex E (*attractor* and *fractals*) means an opening of a new process through the attractor. This opening and innovation continues with each fractal.

Dissipative Processes in Psychology

Attractor. The attractor marks a point of instability towards which the system moves. The nonlinear continuity of the psychological processes has made it possible for us to investigate the nature of the emergent processes observed.

The appearance of an attractor is the motive for beginning therapy and it opens the door to a fractal dimension. The trans-rational attractor emerges, according to our clients, as an anguished search for the meaning of life—indeed, a NOSC is the expression of an attractor. For Combs (1995), who viewed healing as an evolutionary process, states of consciousness can be conceived of as chaotic attractors.

Fractals. We believe that the notion of the fractal could form part of the manifestation of Nature towards emergence and self-organization in the same way as the “attractor node” of a bamboo stalk in the famous Buddhist tale propitiates the following fractal. One could almost say that in each fractal a dissipative microstructure could be reproduced.

Summary and Concluding Remarks

This article brings to light twenty-eight years of therapeutic process, and we are conscious of its complexity. We would therefore like to conclude with a summary in order to assist in the comprehension of the dissipative processes. We have proposed that fractals and traumas define human nature, and that these traumas, despite having their own nature, are expressed through the fractals. The fractals, in turn, form dissipative routes, and these routes make up the armor. We refer to this armor as the *black armor*, in metaphorical similitude to *black holes*. The Oxígame process tasks itself with transforming this into *white armor*, in similitude to the *white holes* described by physics. This has to do with resolving and dissolving in order to go beyond duality. Emergent crisis (EC) represents the way in which suffering is expressed, along with all its initiatory charge, in the human being of today.

We therefore conceive that the human being is memory, exposed by routes and traumas, with a view to accessing consciousness via the dissipation of the shadow of that memory. It is thus necessary to heal the familial and genealogical wound as a first step. The human being makes its home within many armors, united by their respective attractor nuclei as if they were layers of onion skin. Through the dissolution of the pathological phenomenon, which forms part of the mortal vestments with which one passes through life, via this process,

one can gain access to the Self, and finally free oneself from the maddening thirst and duality that otherwise consumes. One is then able to enter with amazement into the contemplation of the mystery of the ineffable, in the quietude of silence. The Tao of Richard Wilhelm (Lao Tzu, 1985), the Veiled Reality of Bernard D'Espagnat (1994/1995), and the Cosmic Warp of Juan Rof Carballo (1961) all speak of this. We would like the Oxigeme process effectively and pragmatically to serve those who suffer in the search for meaning, which at times leads to misguided shortcuts in the abuse of drugs, power, and New Age illusions.

This concept of the human being as memory has been contemplated by other authors with whom we find important connections: Grof's COEX (1985), the constellations of Carl Jung's archetypes (1934-1954/1981), Bert Hellinger's constellations (Hellinger, Weber, & Beaumont, 1993/1998), Ivan Boszormenyi-Nagy and Geraldine Spark's (1984) invisible loyalties, characters, armors and family traumas, with their bodily similarities, their gestures and unconscious proportions. To this list can be added family and social therapies, Jacob Moreno (1946/1977) and Pierre Weil's (1967) psychodramas, Alejandro Jodorowsky's (2004/2010) genealogical therapy, Bob Hoffman's (1979) quadrinity, the diverse systemic therapies that focus on the family and genealogical totality such as that of Mony Elkaïm (1994/2002). Complementarily, a vertical therapy provides depth to these horizontal experiences with their corporal, psychological aspects and those of consciousness, as much in ordinary states as in non-ordinary ones. We also find a link to Rupert Sheldrake's (1981) theories in the sense that routes and traumas can be understood as morphogenetic fields, and with those of Stanley Krippner (2000) in the way in which he perceived the evolutionary laws of chaos. We have yet to research possible connections with the theories of Ken Wilber and integral psychology, as well as Claudio Naranjo's (1994) enneagram theories.

We have presented a possible dissipative framework for psychopathology where the symptom, viewed as an emergent crisis, is seen as an opportunity for transformation and healing within the differentiation process. Applying theory to practice, we have traced the dissipative route of a traumatic event ("the threatened artistic exhibition") over the dissipative route of a character ("the hysteric"), following the dissipative vortex of the SIB process. Sensitivity gives way to

instability, which leads to bifurcation and the resulting self-organization and renewal of the system. From the perspective of the EC, the official psychology may well have misunderstood the laws of transformation and Nature's evolution. We might be victims of a language error that could be reversed by establishing order where previously there was chaos, and vice versa.

Empirical questions. It would be very interesting to compare notes with other professionals investigating these processes in order to contrast results.

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Note

1. Not his real name. Permission has been given by the patient to recount his case history and to use his drawings from therapy sessions. This case and the accompanying drawings have been previously published (Almendro, 2002; also see Almendro, 2008a).

About the Authors

Manuel Almendro, PhD, is a clinical psychologist and Director of Oxigeme, a psychotherapy integration centre in Madrid and Barcelona, Spain, where he conducts individual and group psychotherapy as well as a research and training program. He holds a European Certificate in Psychology and Psychotherapy (EuroPsy).

A member of the European Federation of Psychologists' Associations (EFPA) and founding President of the Spanish Transpersonal Association (ATRE), he is on the boards of the *International Journal of Transpersonal Studies* and the *Journal of Transpersonal Research*. Dr. Almendro is the author of a number of articles and books, including *Psicología del Caos* [Chaos Psychology], *Psicología y Psicoterapia Transpersonal* [Transpersonal Psychology and Psychotherapy], and *Chamanismo* [Shamanism]. Since 1980, he has worked with the Mazateca of Mexico, the Ashaninka and Shipibo-Conibo of the Peruvian Amazon, and also in the Zen tradition with Taisen Deshimaru. He also conducts seminars with Thai master Dhiravamsa combining psychotherapy and Vipassana meditation, and has introduced innovative psychotherapeutic methods such as Induced Vibration: a body-mind-spirit integration aimed at healing and Consciousness. Based in Spain, Dr. Almendro also lectures and conducts workshops throughout Europe and South America. Correspondence concerning this article should be addressed to Manuel Almendro. E-mail: correo@oxigeme.com

official publication of the International Transpersonal Association. The journal is available online at www.transpersonalstudies.org, and in print through www.lulu.com (search for IJTS).

Daniella Weber has a joint BA in Religious Studies, and Religion and Literature from the University of British Columbia in Vancouver, Canada. Since 2006 she has worked as a freelance Spanish-English translator, having translated Dr. Almendro's book *Psicología del Caos* [Chaos Psychology], as well as a number of articles by different authors, including "*Plantas con madre*: Plants that teach and guide in the shamanic initiation process in the East-Central Peruvian Amazon." She has participated in seminars in Induced Vibration, breathwork, Vipassana meditation, as well as a seminar in the Peruvian Amazon through the Oxigeme centre in Spain. Daniella currently works in the Faculty of Medicine at the University of British Columbia while taking classes in counselling psychology. In September 2011 she will begin a master's in the Interdisciplinary Studies Graduate Program at the University of British Columbia, examining the healing and transformative potential of Jewish mystical visionary techniques and experiences.

About the Journal

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