Society for Chaos Theory in Psychology & Life Sciences
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22nd Annual International Conference

THE SOCIETY FOR CHAOS THEORY IN PSYCHOLOGY & LIFE SCIENCES

July 26-28, 2012
The Johns Hopkins University, Baltimore MD, USA

Dave Pincus 2012
Conference Chair

NOW ENTERING OUR THIRD DECADE

The 22nd Annual SCTPLS International Conference will be returning to Johns Hopkins University, Baltimore MD July 26-28, 2012. The program this year will include Keynote Presentations by Jeffrey Goldstein, Ph.D., from Adelphi University and Professor Yaneer Bar-Yam, Founding President of the New England Complex Systems Institute. Following the success of the 2011 methods workshop, we will be offering a similar workshop at Johns Hopkins, this time with four presenters and in-depth coverage of nonlinear methods not previously covered. Watch this web-site for updates including abstracts for the keynote talks and workshop contents. In addition to these special presentations, the 2012 conference will include 6-8 symposia, 30 plus concurrent sessions and 5-10 posters. Attendees will include an international group of 60-70 psychologists, physicists, mathematicians, researchers and others who all share a common focus in investigation and applications of nonlinear dynamics to psychology and the life sciences. Now is the time to begin your travel plans and to prepare your abstract for submission.

Our organization, the annual conference, and our work has never been stronger or in higher demand. The annual international conference of SCTPLS provides a one of a kind opportunity to showcase ones achievements, to keep up with advances in nonlinear science, and to network with international colleagues. Providing a small, focused conference with broad interdisciplinary and international scope, this summer is the time to share your interesting work among those who truly "get it."

CALL FOR PAPERS AND SYMPOSIA

We invite interested scholars to present and discuss recent developments in nonlinear dynamical system theory, which includes chaos theory, fractals, complex systems and related topics. Over the years, the SCTPLS annual conferences have inspired and supported scholars from an array of disciplines to look at new ways to develop their theoretical and empirical work in an integrated approach to life sciences.

The SOCIETY FOR CHAOS THEORY IN PSYCHOLOGY & LIFE SCIENCES is a multidisciplinary organization. The topics covered by the conference include applications of nonlinear dynamics theory and techniques to problems encountered in any area of the behavioral, social and life sciences including psychology, sociology, economics, econophysics, management sciences, anthropology, aesthetics, education, biology, physiology, ecology, neuroscience and medicine. One or more of the following nonlinear concepts must be an explicit part of the presentation: attractors, bifurcations, chaos, fractals, solitons, catastrophes, self-organizing processes, cellular automata, agent-based models, network analysis, genetic algorithms and related evolutionary processes, dynamical diseases, or closely related constructs. The broad mixture of the disciplines represented here indicates that many bodies of knowledge share common principles.

The program will include workshops, invited addresses, symposia, panel discussions, a poster session, and sessions of individual papers. Advances in basic or applied research, developments in theory, reports of empirical results and methodological papers are all welcome. We continue to encourage all nonlinear scientists, including graduate students who might be finishing up a dynamical thesis or dissertation, to consider sharing their ideas through paper presentations, chairing a roundtable session, or by proposing other alternative presentation formats, such as posters, product demonstrations, short workshops, or debates around controversial topics.

VENUE

Our meetings will be held at the beautiful campus of **The Johns Hopkins University, Baltimore, MD.** Baltimore is about 40 miles north of Washington DC, and is serviced by the Baltimore-Washington International Airport. We will be using the newly renovated facilities of JHU for as our primary lodging. Additional information about these facilities and local alternative hotels will be posted to the lodging page of this conference web site.

INSTRUCTIONS FOR ABSTRACTS

Abstracts should be between 150-250 words for posters, individual papers, short workshops and other alternative

The connection to nonlinear dynamics, chaos, complex-reader. Include organizational affiliation and contact information on each speaker or author.

Abstracts may be up to 500 words for symposia or panel discussion. For symposia, abstracts should reflect the content of EACH speaker's contribution. The format for a symposium is for all speakers to give presentations, followed by or interspersed with discussion. Symposia should present current research within a coherent theme defined by the title and abstract.

For experimental work, the background, aims and framework, methods and samples, results, conclusions and implications should be clear to the reader. For theoretical work, the background, aims and framework, mode of inquiry, outcomes, conclusions and implications should be clear to the reader.

Abstracts for panel discussions should provide a brief overview of the topic, and indicate the relevant background of the panelist and sample questions they will address. The format for a panel discussion is an introduction to the topic and the speakers, after which the panelists address as series of questions or issues (rather than just giving a series of presentations).

Abstracts for workshops should present state-of-the-art information on techniques useful for conducting research or applications of nonlinear science in the behavioral, social and life sciences. They should be pedagogical in nature. Where applicable, the abstract should emphasize skills that attendees can expect to acquire.

For all abstracts: The connection to nonlinear dynamics, chaos, complexity, fractals or related concepts should be clear to the reader. Please stress what is the overall value added to the field (e.g. new method, new information, new perspective or issue, valuable confirmation of the present knowledge, adds clarity to present understanding). Also, please indicate on the submission form which of the following categories is representative of your submission: (1) Empirical (e.g., presentation of empirical results of a study),(2) Theoretical (e.g., empirically testable theoretical development), (3) Applied (e.g., organizational, business, product development or marketing, or involving clinical interventions), (4) Quantitative (e.g., computational or statistical modeling); (5) Qualitative (e.g., non-quantitative analysis of empirical data); (6) Philosophical or artistic (e.g., epistemology, philosophy of science, aesthetics, or audio-visual demonstrations)". Each person submitting is limited to a maximum of two presentations as first author. It is acceptable to be a co-author on additional work submitted by others.

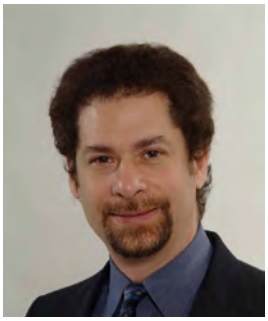
Trouble submitting? If your submission is received successfully you will be taken to a confirmation page, with a link to follow for any future edits. If you have repeated trouble making your submission, as a back-up option please feel free to send all of the relevant submission information directly to David Pincus: pincus@chapman.edu, the conference chair, who can make sure that your submission is successfully loaded into the system.

The deadline for submissions is April 30, 2012. Abstracts should be submitted electronically by visiting: http://www.societyforchaostheory.org/conf/2012/cfp PUBLICATION OPPORTUNITY All presenting conferees are further invited to prepare their papers for review and possible publication in the Society's research journal Nonlinear Dynamics, Psychology, and Life Sciences. NDPLS is peer-reviewed and abstracted in PsycInfo (Psychological Abstracts), Medline (Index Medicus), JEL/Econlit, MathSciNet, and other important databases. NDPLS uses American Psychological Association (APA) style. Click JOURNAL on the SCTPLS web site to access Instructions for Authors. All SCTPLS members receive NDPLS and the SCTPLS Newsletter as a benefit of membership. NDPLS accepts manuscripts all through the year, but please use October 1, 2011 as the target date for submitting conference-related papers; the journal would like to have as many articles based on conference presentations as possible ready for the same issue.

Warmest regards,

David Pincus, Ph.D., Chapman University, SCTPLS President & Conference Chair
Stephen J. Guastello, Ph.D., Marquette University
Sara Nora Ross, Ph.D., Antioch University, SCTPLS Secretary
Dick Thompson, Ph.D., High Performance Systems, SCTPLS Past-President

We are delighted to present our invited speakers



Yaneer Bar-Yam

Professor **Yaneer Bar-Yam** is Founding President of the New England Complex Systems Institute. His research focuses on developing complex systems concepts and applying them to diverse areas of scientific inquiry and to major social problems. His textbook "Dynamics of Complex Systems," and popular book "Making Things Work" describe fundamental science and diverse applications. His webpage is http://www.necsi.edu/faculty/bar-yam.html

Complex systems science and policy challenges: The global economic and food crises--recent events and future predictions

When an economic system is robust it can function under a variety of stresses, and when it is not robust even minor perturbations cause cascading failures and dislocation of its function. We have seen evidence of such dislocation in recent financial system failures, massive economic losses, and in the need for government rescue. Identifying the underlying reasons for

economic instability and how they may be corrected motivates our work. Our studies [1-3] show that government policy decisions, often in deregulation but also in regulation, have undermined market equilibrium and economic optimality. At least four areas of regulatory activity have played a major role in the global financial, economic and food crises: Banking deregulation, commodity futures deregulation, ethanol subsidies, and stock market deregulation. We trace their impacts to the massive economic losse**s** and the starvation of millions and food riots due to non-equilibrium food prices. Trend following, panic, and other collective behaviors are known to destabilize market equilibrium, but we show for the first time their quantitative effect on market prices, crashes and bubbles, validating against market data. Similar to other systems with emergent behaviors, effective economic activity depends on robustness to cascading failures. Science can provide both insight and analysis of the effect of regulations to increase reliability, reduce systemic risk and promote growth.

Jeffrey Goldstein

Jeffrey Goldstein, Ph.D., Adelphi University, Full Professor, School of Business, Adelphi University; author/editor of numerous books including: *Complexity and the Nexus of Leadership: Leveraging Nonlinear Science to Create Ecologies of Innovation*; *Complexity Science and Social Entrepreneurship: Adding Social Value through Systems Thinking*; *Complex Systems Leadership Theory*; *Classic Complexity*; *The Unshackled Organization; Annuals of Emergence: Complexity and Organization 2004-2010;* and the forthcoming *Flirting with Paradox in Complex Systems: Emergence, Creative Process, and Self-transcendence.* Co-editor-in-chief of the journal *Emergence: Complexity and Organization*, Board of Trustees of the journal *Nonlinear Dynamics, Psychology, and the Life Sciences;* author of over 150 scholarly papers focusing on pure and applied complexity science; lecturing at eminent universities throughout the world; consulting many public and private organizations; co-founder, Institute for Research in Complexity and Society (www.complexityandsociety.com.)

Honest Toil in Complexity Science

The address will provide a general sketch of how the sciences of complex systems have been, over the past several decades, radically revising our understanding of the dynamics of such systems. This unprecedented amplification of understanding has concomitantly been deepening of our capacities for making more effective interventions in complex systems. Not only have new mathematical and physical tools applicable for specific contexts emerged, but also novel problem-solving and critical-thinking approaches. The researcher, the theorist, the intervener now possess much greater insight into, e.g., cooperative structures, coordination dynamics, networked interactions, and how development can proceed. One of the keys for the advances made by complexity science has been vigilance on the part of theorists and researchers, against strong temptations not to, to follow this precept offered by Bertrand Russell: "The method of 'postulating' what we want has many advantages; they are the same as the advantages of theft over honest toil. Let us leave them to others and proceed with our honest toil." Topics to be highlighted are meant to show how excursions into relatively lesser known regions of the world of complexity can offer suggestions as to how complexity science has remained true to "honest toil."

Full Day Workshop on Nonlinear Methods

Methodologies provide a doorway to new information, the advancement of theory, and development of new applications. The Society for Chaos Theory in Psychology and Life Sciences (SCTPLS) is pleased to announce a full day pre-conference workshop covering a range of nonlinear methodologies that are well suited to broad and interdisciplinary applications across psychology, social sciences, and life sciences.

The workshop is scheduled from **8:30 AM to 5:00 PM, Thursday, August 4, 2011**– kicking off the 22st Annual International Conference at The Johns Hopkins University.

For Beginners: This workshop is ideal for individuals who want to move forward to design and conduct a research project involving nonlinear dynamics, and also have a better understanding of the works of others using related methodologies. We recommend that participants should have a basic familiarity with concepts of attractors, bifurcations, chaos, complexity, and related nonlinear concepts. This is an excellent training opportunity for graduate students, especially those who plan to do a dissertation with impact.
See: http://societyforchaostheory.org/ for recommended sources and on-line tutorials on these topics.

For Experts: Each workshop module will provide up to date developments on fast-moving topics and software options. Advanced researchers will gain: a deeper understanding of the theoretical coherence among the various approaches along with detailed information regarding empirical design and interpretation of results.

The workshop will begin with a brief introduction followed by four 90-minute modules. The specific topics and presenters are being finalized at the moment. Stay tuned for updates. The day will conclude with an open group discussion with the training panel.

Traditional Nonlinear Metrics and Surrogate Data Testing

The main topic of this workshop session will be the dynamical behavior of nonlinear systems, as visualized and studied in the state space. A central topic is time-delay reconstruction of trajectories in the state space: how to do it correctly, basics of the underlying fractal topology, and applications. The dimension of reconstructed attractors will be discussed, including correlation dimension, computational procedures, and interpretation of dimension estimates. Emphasis will also be placed on the use of surrogate-data techniques, to validate dimension estimates and test specific hypotheses about the data. Examples from physiological studies will be presented.

Mark Shelhammer, Sc.D., Associate Professor, Department of Otolaryngology – Head & Neck Surgery and Associate Professor, Department of Biomedical Engineering, The Johns Hopkins University, School of Medicine

Dr. Mark Shelhamer received his doctoral degree in Biomedical Engineering from MIT in 1990. While there, he studied sensorimotor physiology and modeling. His research work involved the study of astronaut adaptation to space flight, including participation in two sets of Spacelab experiments carried out on the space shuttle. He then moved to Johns Hopkins where he continued the study of sensorimotor adaptation with an emphasis on the vestibular and oculomotor systems. This has included the opportunity to study adaptation to altered gravity environments through flights in NASA's "vomit comet" parabolic-flight aircraft. In parallel with this, Dr. Shelhamer has applied nonlinear dynamical analysis to the control of eye movements, emphasizing the temporal and spatial dynamics of reflexive, reactive, and predictive control. His most recent work explores the functional implications of fractal activity in sensorimotor adaptation and vestibular processing. He is the author of Nonlinear Dynamics in Physiology: A State-Space Approach, has published over 60 scientific papers, and has had research support from NIH, NSF, NASA, NSBRI, and the Whitaker Foundation.

Analysis of Oscillators

Modeling Oscillations in Regression, Structural Equation Modeling and Multilevel Models: This workshop is designed to introduce participants to the logic and approaches for modeling cyclical phenomena through testing oscillatory equations. These equations treat acceleration in a measure as the outcome with forms of the measure (in terms of position and velocity) being treated as predictors. These models can simultaneously estimate damping and frequency, be expanded to include common nonlinear terms identified by Ralyeigh, Van der Pol, and Duffing, and include control parameters to account for within time series and between time series variability. Furthermore the approach can be expanded to allow for coupled equations that display entrainment behavior. Examples will be covered for a single time series in regression (in SPSS) and Structural Equation Modeling (in MPlus; also called Differential Structural Equation Modeling in this context), and for multiple time series using multilevel models (in SPSS Mixed).

Jonathan Butner, Ph.D., Associate Professor, Department of Psychology, University of Utah.

Jonathan Butner is an associate professor of psychology at the University of Utah. Trained as a traditional social and quantitative psychologist, Jonathan seeks to integrate systems concepts with behavioral data analytic techniques and methodologies. He has published broadly including articles on the fractal nature of conversations, soft-assembly models of diabetes management in adolescents, and the coordination of affect among couples. Striving to work with data collected through lab and field experiments, he has expanded the literature on modeling nonlinear and coupled oscillatory effects in regression, multilevel modeling, and Structural Equation Modeling. His current research includes assisting NASA in identifying factors that lead to cost overruns, testing a theory of dynamic vision under motion, and a statistical integration of systems modeling approaches across oscillatory and non-oscillatory effects.

Catastrophe Theory

Catastrophe theory describes and predicts discontinuous changes of events. It is perhaps one of the earliest modes of nonlinear dynamics to cross into the social sciences with empirical supporting evidence. Catastrophe models range from simple to complex, and involve different configurations of attractors, repellors, saddles, bifurcations, and control variables. This portion of the nonlinear methods workshop covers basic principles, some classic applications, and the statistical procedures that anyone can use to test catastrophe models. Emphasis is placed on techniques that can be performed with popular and available software. Recommendations for experimental designs are also included.

Stephen J. Guastello, Ph.D. is a Professor of Industrial-Organizational Psychology and Human Factors Engineering at Marquette University, Milwaukee WI. His published applications of catastrophe theory include work motivation, personnel selection, program evaluation, stress and human performance, occupational safety and health, leadership emergence, binge drinking among college students, and diffusion of innovation. He has authored three books *Chaos, Catastrophe, and Human Affairs* (1995, Erlbaum/Taylor & Francis), *Managing Emergent Phenomena* (2002, Erlbaum/Taylor & Francis), *Human Factors Engineering and Ergonomics: A Systems Approach* (2006, Erlbaum/Taylor & Francis); and co-edited *Chaos and Complexity in Psychology: The Theory of Nonlinear Dynamical Systems* (with M. Koopmans and D. Pincus, 2009, Cambridge University Press). He is the founding Editor in Chief of SCTPLS' research journal, *Nonlinear Dynamic, Psychology, and Life Sciences*.

State-Space Grids

State-Space Grids (SSG's) provide a relatively simple means of tracking interactive dynamics among two agents over time. The most common and widely published application of SSG's has been to understanding rigidity and flexibility in family or peer relational contexts. SSG's typically analyze change across a 2 x 2 grid in nominal (e.g., interpersonal behaviors or affects) or ordinal (e.g., levels of engagement or affective intensity) codes of verbal or nonverbal behaviors over time. The grid itself is simply a two dimensional surface that tracks the movement of this two parameter system across each of the possible states; and the method could be applied to any two variable system. Once graphed, these data may then be analyzed in a variety of ways to compare complexity of interactions for hypothesis testing, for example with respect to frequencies of transitions, length of time in each state, or Shannon Entropy.

Dr. David Pincus is an Associate Professor of Clinical Psychology and Behavioral Medicine in the Crean School of Health and Life Sciences at Chapman University in Orange, California, USA. He obtained his Ph.D. in Clinical Psychology at Marquette University and completed a post-doctoral fellowship through The UC Davis Department of Psychiatry in Child and Adolescent Psychology. Dr. Pincus research focuses on the application of nonlinear dynamical systems theory to a variety of topics in clinical psychology and behavioral medicine including: resilience, interpersonal dynamics and health, integrative psychotherapy, pain, guided imagery, self-injurious behavior, and quantum consciousness. In addition to various articles and chapters on these topics, he is the lead author of: "Imagery for Pain Relief: A Scientifically Grounded Guidebook," and a co-editor of: "Chaos and Complexity in Psychology: The Theory of Nonlinear Dynamical Systems." Dr. Pincus maintains a private psychotherapy practice and is the current president of The Society for Chaos Theory in Psychology and Life Sciences.

Feature Article

Experiential Balancing Therapy: An Integrative Psychotherapy Theory and Approach Grounded in Complex Adaptive Systems Theory

David Pincus, Ph.D.
Crean School of Health and Life Sciences, Schmid College of Science, Chapman University

"There is nothing so practical as a good theory" (Lewin, 1951, p. 169).

Introduction

The need for practicality in theory is as true today as it was in Lewin's time, when he and others like him bravely set the stage for our ongoing work. Modern nonlinear dynamical systems theory must continue to strive to be much more than just "fun with numbers" (as it was called by one of my potential dissertation committee members at Marquette, who I promptly replaced). On the one hand, we must not resort to vague metaphor on one hand or to models built simply because they don't collapse on the other. The search for truth is indeed an end unto itself. Yet, parsimony is the undergirding to both truth and practicality.

What follows is an edited version of a much more extensive treatment manual for a new system of psychotherapy – Experiential Balancing Therapy. It is one clinical psychologist's attempt to apply nonlinear dynamical systems theory to psychotherapy in a direct, practical and empirically falsifiable manner. Obviously, this is a work in progress, and it will take years to test the effectiveness of the approach, and even more time to examine the underlying processes that lead to good outcomes as well as the efficiency of those outcomes. Nevertheless, it is my hope that the ideas presented here will live up to some extent to Lewin's call from the past, that this snippet will prove interesting for our

members, clinicians and non-clinicians alike, as we each aim to find ways to move our work from simulation software platforms and laboratory experiments into the messy world that is psychology and the life sciences.

Theoretical Overview

Experiential Balancing Therapy (EBT) is an integrative approach to individual psychotherapy based on complex adaptive systems (CAS) theory (Pincus & Metten, 2010). The approach combines theoretical constructs and techniques from the vast array of empirically validated approaches including: cognitive-behavioral (particularly "third wave" behavior therapies (Heyes, Follette, & Linehan, 2004), emotion-focused and other humanist-experiential therapies (Greenberg, 2002), and the vast array of psychodynamic approaches (including interpersonal therapies, e.g., Teyber, 2005; Luborski & Crits-Christoph, 1998). The unifying concept for integrating these approaches is that all empirically validated approaches share a common focus on the expansion of experience while maintaining the systemic integrity of consciousness; increasing people's broadband flexibility without pushing them beyond their structural limits.

As the name suggests, EBT aims directly at assisting clients to obtaining optimal experiential balance – structural integration and flexibility. This is the primary advantage of EBT over other approaches; the goal of treatment is more specific and direct, while at the same time more general and applicable to individuals across the variety of diagnostic categories, personality traits, and life situations. In addition, EBT provides a broad umbrella to cover the work of therapists from diverse schools of training and therapeutic styles. Anyone can do EBT, from psychodynamic to behavioral in orientation, from reflective and process-oriented to active and directive in style.

Indeed, it is my contention that all competent clinicians are already practicing EBT primarily, despite the specific techniques to which they may claim primary allegiance. The most important guiding principles in therapy are also the most neglected in most treatment manuals – or relegated to the domain of "common factors," (e.g., empathy and therapeutic alliance) which are too often treated as if they are inactive or distinct from theories of change. EBT promotes these "secondary" or "common factors" to primary status, and removes their distinction from "technique." Most experienced clinicians have learned that therapy process and technique are entirely inseparable.

Moreover, all theoretical models are centrally involved with the exploration of the client's subjective world. Within this exploration, the various approaches to therapy each aim at the discovery of rigid or restricted patterns of experience, and the application of some minimally sufficient technique which may serve to increase both connection and flexibility within these rigid and restricted areas. When viewed from this perspective, any distinctions among approaches are entirely attributable to style and technique, not to theory. EBT makes this common theoretical grounding empirically accessible, and takes the implicit search for rigidity and goal of flexibility and makes them explicit and central. Indeed, no matter the approach, it is my contention that activating people's natural propensities toward flexibility in experience is the most fundamental and essential function all good psychotherapy. At the same time, I propose that intentionality is the most immediate and proximal control parameter involved in opening and closing channels of novel experience in day-to-day life.

EBT is grounded in Complex Adaptive Systems theory (CAS), which allows for broader and deeper theoretical testing (beyond simple treatment outcomes), as well as the benefits of trans-disciplinary theoretical development. Beyond the lingering bickering among the various camps of psychological "theory," EBT aims for theoretical grounding beyond the ways that cognition, behavior or emotion work in relative isolation from one another. Instead, CAS is concerned with how nature works.

The specific role of the therapist within EBT is to assist clients in the search for novel, missing, or integrating information within particularly stagnant, restricted, or disintegrated areas of consciousness. For discussion purposes, we will define consciousness here as the holistic total of a client's available and potentially available perceptual information. Such perceptual information is derived from some combination of imagery (sensory cognition) and external sensory information – essentially top down and bottom-up perception respectively. Some information is near entirely imaginary (e.g., dreams) and others have a larger portion of external information or objective standing.

Further demarcations can be made to label information as either: primarily emotional-somatic, primarily cognitive-evaluative, or primarily episodic (e.g., memory for events). Finally, behavior, attention, and intention play key roles within the flow of perceptual consciousness. Behavior is the primary context for perceptual affordances, constructing boundaries around what can and can't be perceived within a given context (Hollis, Kloos, & Van Orden, 2009; Gibson, 1977). Even the smallest intentional change to a well-rehearsed habit may shift the basic perceptual building blocks of consciousness or the available templates for intentionality, for example by changing the hand you use to brush your teeth.

Similarly, intentionality reworks perception-action sequences from the bottom up. Intentionality brings embodiment to cognition and fundamentally shifts consciousness down to the level of neuronal dynamics within the brain (Freeman, 2000). For example, the experience of delivering a hit in (American) football versus being clobbered from one's blind-side may appear to be equivalent, yet delivering a hit is far less likely to bring injury because the entire mind-body system is preparing itself around this freely selected action. Similarly, one's visual perception is smooth and coherent when one chooses to turn one's head, while an unexpected head jerk leads to a visual blur as the visual system is unable to account for the unexpected shift in perspective.

Further up the hierarchy of conscious processes, intentionality may also result in radically different

outcomes in confidence, attributions, and meaning. Finally, attention is the window through which conscious information flows. Moreover, when one combines intentionality with attention (i.e., choosing to focus ones attention on attention itself), the result is the process of mindfulness.

When any of these processes of conscious become sufficiently blocked or cut off from the larger process of holistic consciousness they become isolated, stagnant and rigid. It is this basic process that is hypothesized to be the most efficient and systemic (or formal) cause of neurotic dysfunction ("neurotic" as used here refers to most diagnostic conditions other than psychosis). In broader terms, the explanatory emphasis for psychopathology, assessment, and treatment lies primarily with the structural aspects of experience. The term, "experience" may be defined more specifically as sensory images underlying: (a) here and now perception, (b) key developmental memories, and (c) teleological content pertaining to important life goals or values.

This focus on changing the structural dynamics of imagery stands in contrast to cognitive approaches aiming at contents, particularly verbally-oriented material. By contrast, verbal cognition is largely viewed as secondary epiphenomena, like a verbal play-by-play description of sensory imagery, which is the primary and essential experience. Similarly, the focus is different than traditional behaviorism aiming to change the content of behavior. Instead, behavior that is more flexible is a vehicle to bring about more flexible perceptual information, better integration among developmental memories, and broader a broader teleological perspective. For example simple assertiveness training may bring about an essential shift in one's ongoing self-perception; one's derived meaning from past abuse; and greater optimism about the future. Each of these broad functional outcomes will be hypothetically greater in direct proportion to the degree of restriction the client has with respect to intentional assertive actions – both over time and across biopsychosocial space. Indeed I am proposing that there is a direct and proportional "bang for your buck" effect in aiming for areas of rigidity and restriction. Simply, the more rigid the target of intervention, the less change that is needed to bring about increased flexibility. The relationship between rigidity and therapeutic pliancy is hypothetically a dynamical equivalent to Weber's Law of just noticeable differences in perception – the ability to perceive a change in pattern is directly proportional to the negative entropy within that pattern.

Intention is not only a means to increase flexibility; it is also a key process that can become bound up in rigidity. Restriction, stagnation, or isolation of experience defined as such, within one or more of these specific domains, each lead to a loss of a person's intentionality function – the ability to choose – as well as a narrowing of perceived choices that are available. As such, direct means of increasing client intentionality and also the range of experiential options becomes the guiding principle underlying the use of various empirically validated techniques. This is a basic and long-held truth of psychotherapy that is advanced most clearly within the existential traditions (e.g., Yalom, 1980). EBT simply aims to formalize and empirically ground the use of intentionality so that it is clearer and simpler for both therapists and clients to understand and use. Within the emotional realm, for example, the common goal across therapies then is to broaden ones range of emotional experience along with one's intentionality in selecting what to do with that emotional experience. Will you use anger here? Or will you search for a more primary emotion? And what will you allow that emotion to do for you? And what else might you be feeling? And what will you do with that? The same statement applies when one substitutes "emotional" with "cognitive," "behavioral," or "interpersonal." The simple monitoring phase of cognitive therapy can be potent on its own because it often leads to increased intentionality in cognition, while effective cognitive "restructuring" is essentially about increasing the flexibility of thought, not their contents (Ellis, 1977).

Increased intentionality and flexibility within and among these areas are conceived to be both causes and also outcomes of successful treatment. In addition, treatment outcomes are aimed at building optimal balance (i.e., integrity and flexibility) within and among impacted behavioral, emotional, cognitive or social dynamics. This process of returning "wholeness" to one's sense of self, and imagined past, present and future experience(s) is the hallmark of "healing."

Using CAS, "experiential balance" rests upon several empirically verifiable assumptions: (1) Biopsychosocial processes are organized as nested hierarchical systems, with fractal (or quasi-fractal) network connections and outputs over time. (2) Adaptive responses within these systems occur through shifts toward rigidity or flexibility, primarily through the biopsychosocial integration function of the hypothalamic-pituitary-adrenal (HPA) axis. (3) Rigidity increases short-term robustness against threats to systemic integrity. (4) Flexibility allows for new growth, connectivity, and systemic integration. (5) Systemic evolution occurs via bifurcation, chaotic transitions, or changes to coupling relations (i.e., connection or linkage) among system elements. Reviews of specific evidence for these assumptions along with models and methods for further empirical testing can be found in Pincus (2009), Pincus & Metten (2010), Pincus (2012), and Pincus & Guastello (in press).

Epilogue

The full treatment manual from which these excerpts above were culled contains a variety of techniques from across the different psychotherapeutic approaches, specific rubrics and a roadmap for use in assessment, and guidance about work to be done across beginning, middle and ending stages of psychotherapy. Various practical case examples are included in the training program as well, to ensure the practicality of the concepts that are presented. In essence, the development of EBT is not intended to supplant or replace existing approaches to therapy. On the contrary, it is meant to celebrate them, and more so to celebrate the unique approach to therapy that each clinician develops with each client during each session, anew and never to

be replicated. Like any good celebration, it is important to invite as many as these good friends and neighbors as we can, behaviorists and analysts and everyone in between. To do so, we must first recognize what we have in common – that we each work with emotion, cognition, behavior and interpersonal dynamics alike – and that no one domain is dominant or truly inseparable from any other. Nor is there an inherent superiority to working with past-, present-, or future-oriented material in psychotherapy. Most importantly, we all seek to increase the intentionality, the freedom, of our clients and to provide a therapeutic space and set of therapeutic practices (or rituals) that will allow for renewed wholeness, healing, flexibility. Scientific work and theoretical principles from CAS provide the means to have such a celebration, for which I, for one, am grateful.

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News from Members

Award to Doris Fromberg.

The New York State Association for the Education of Young Children has named Doris Fromberg as this year's *Champion for children Early Childhood Leader*. **Doris Pronin Fromberg** is Professor and past-chairperson of the Department of Curriculum and Teaching at Hofstra University where she also serves as Director of Early Childhood Teacher Education. She serves on the New York State Governor's Early Childhood Advisory Council as well as editorial boards of professional journals. She is a past-president of the National Association of Early Childhood Teacher Educators (NAECTE) and of the NAECTE Foundation, and has chaired the Special Interest Group on Early Education and Child Development of the American Educational Research Association as well as the Special Study Group on Elementary Education of the American Association of Colleges for Teacher Education. She was the recipient of the Early Childhood Teacher Educator of the Year Award from NAECTE/Allyn & Bacon. She is an advocate of high quality early childhood teacher and administrator education. Among her publications are *The All-Day Kindergarten and Pre-K Curriculum: A Dynamic-Themes Approach* (Routledge, 2012); *Play and Meaning in Early Childhood Education* (Allyn & Bacon); *The Full-Day Kindergarten* (Teachers College Press); *Play from Birth to Twelve* co-edited with D.Bergen (Garland); *The Encyclopedia of Early Childhood Education* co-edited with L.R. Williams (Routledge), and *The Successful Classroom* with M. Driscoll (Teachers College Press).

The Modelling of Human Crowd Behaviour, *by Kyle Findlay*

Modelling crowd behaviour is an active field that draws inspiration from many areas, most recently from self-organising, organic systems such as insect swarms. Mehdi Moussaïd, Dirk Helbing and Guy Theraulaz show in this research that we can improve upon our results and simulations by not being beholden to any single paradigm. This do this by showing how their hybrid

methodology for simulating crowd behaviour that mixes traditional spatial, force-based models with more cognitive models outperforms either method in isolation.

If one takes into account densely packed areas with crowd turbulence of around 5-6 people per square metre (as we see in Mecca during the Hajj or at the fateful Duisberg Love Parade which ended in tragedy in 2010), then we do find that individual movement is, to a large extent, a factor of the surrounding crowd movement. This has traditionally been model using driving forces, repulsive forces, etc. The authors point out that analogies are often drawn between such models and other physical systems (e.g. fluid dynamics), however, they also point out that such analogies are not fully satisfactory – they do a decent job of describing movement, but they do less well at describing why people behave in such a manner.

Source: "Deciphering the Movement of Pedestrians in a Crowd", ScienceDaily, http://www.sciencedaily.com/releases/2010/04/100413072044.htm

In order to fill in the gaps, they propose a cognitive model of crowd movement that does a better job of describing individual movement at low densities. Like many elegant, self-organising models, they suggest just a few simple rules for modelling crowd behaviour:

1. Pedestrians choose the 'deepest' empty space between other individuals that is also closest to their destination. This is based on their own field of view.
2. Walking speeds adapt so that the collision time with other entities is greater than the individual's reaction time.

Using this approach for low densities yielded good results. However, such an approach broke down at high densities, when a phase transition occurred, which saw individuals switching from a vision-based approach to a touch-based approach in which physical contact becomes more important as individuals' view becomes increasingly restricted. Given their findings, this approach is a great example of a hybrid methodology that is informed both by "mindless" self-organising processes and more cognitive processes.

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Reflections from John Maynard Smith

Dolly the Sheep made headlines around the world when news broke that the first mammal had been successfully cloned. To mark the anniversary of her death on 14 February 2003, watch the late John Maynard Smith, renowned environmental biologist and geneticist, share his views on her creation and reflect on his highly influential career.

When Dolly the Sheep was cloned from an adult somatic cell using the process of nuclear transfer, it was heralded as one of the most significant scientific breakthroughs of recent years. John Maynard Smith (1920-2004) admits he was perplexed by the news of her creation: "I'm genuinely puzzled by Dolly the sheep … I read the paper in Nature and it convinced me that the phenomenon is a genuine one, and that's exciting, but it didn't offer any explanation of why it worked, because I would not have expected it to work, and most people in the trade would not."

Maynard Smith is world renowned for applying game theory to the study of natural selection. His ideas and published works, such as *Evolution and the Theory of Games*, were enormously influential and he was awarded numerous honors, including the 1999 Crafoord Prize (awarded by the Swedish Academy of Sciences to scientists in fields not eligible for Nobel prizes) and the 2001 Kyoto Prize, Japan's highest private award for lifetime achievement.

In order to preserve his own reflections on his influential career, **Maynard Smith** recorded, in fascinating detail, commentaries on a number of subjects, including his choice of career, the influence of others and how his fascination with topics not easily explained by Darwinian theories seemed to dictate his life's work. The resulting recording can be watched as a number of captivating short clips ranging in length between just seconds and several minutes with a fully searchable transcript. All Web of Stories videos are easy to share with friends and colleagues, and are free for embedding into personal blogs and websites. Find out more: http://www.webofstories.com/people/john.maynard.smith/79

Gilman Hall – An icon of the Johns Hopkins University.

News from SCTPLS Labs

Joseph Dodds (Prague)
Tavistock Policy Seminars "Connecting public Policy and human relationships". *Complexity, Psychoanalysis and Society*. A Day Conference to be held on Friday May 18 2012 Tavistock Centre,120 Belsize Lane, London.
http://ecopsychoanalysis.blogspot.com/2012/03/complexity-psychoanalysis-and-society.html

Complexity theory is one of the most interesting and challenging perspectives on the explanation of behaviour in the natural, psychological and social worlds to have emerged in recent years. This Policy Seminar day conference will explore 'complexity' approaches in the field of psychoanalytic and psychotherapeutic practice, and in their wider application to social issues such as climate change. Speakers will include **Terry Marks-Tarlow** (Los Angeles), author of Psyche's Veil: Psychotherapy, Fractals and Complexity (Routledge 2008); **Joseph Dodds** (Prague), author of Psychoanalysis and Ecology at the Edge of Chaos, (Routledge 2011); **Graham Shulman**, child psychotherapist, Scotland; **Margaret Lush**, child psychotherapist, England; (each authors of journal articles on complexity theory in child psychotherapy) and **Andrew Cooper**, Professor of Social Work at the Tavistock Clinic and co-author with Julian Lousada of Borderline Welfare (Tavistock Clinic Series/Karnac, 2005).

Thomas Dishion, *Arizona State University*
High density EEG lab at ASU. We are starting up a high density EEG lab here at the ASU that focuses on understanding interpersonal co-regulation and coordination in close relationships (parents, peers and romantic). This two year post-doctoral position has a great deal of potential for a person to launch their own career in this emerging area bridging neuroscience, dynamic systems and intervention science.

Yuji ARUKA, *Chuo University*
FuturICT – New Science and Technology to Manage Our Complex, Connected World

What do bird flu pandemics, the Arab Spring revolutions, the financial crisis, traffic jams, terrorist networks and mobile phone viruses have in common? They are all manifestations of our ever more connected world. Quite simply, the current pace of technological change, in particular in the area of information and communication technologies (ICT), is outstripping our capacity to manage them. To understand and perhaps even predict events and effects like these, we need a new kind of science. We also need novel socially interactive ICT systems fostering stability, transparency, trust, respect for human rights, and inclusive participation in political and economic processes.
That is what the international project called FuturICT aims to provide. Drawing on methods and ideas that have already proved their worth, it will bring together many different disciplines in order to develop methods and tools to understand and manage complex techno-socio-economic systems at a global scale.

We already understand a large part of the physical universe around us, but we fail to understand our societies. We have developed ICT technology that allows ubiquitous communication and instant information availability, but we do not understand how it changes our collective behaviour. Globally connected systems and behaviours such as the economy, trade and social unrest cannot be understood, far less managed, on the basis merely of experience, intuition and currently available scientific methods. Their connectedness makes them prone to instability, cascading effects, and extreme events such as catastrophes. This is witnessed by the current crisis of the financial world, which has cost the economy trillions of dollars, yet still lacks explanation in conventional economic theories.

New methods and tools are required to understand such 'networked' systems. The emergence of a science of complex systems has already helped to describe and understand situations like these. For example, complexity science has been used to develop large-scale models of epidemics, economic risk analyses, and intelligent crowd management. Yet these are just the beginnings. To extend the scope of this approach, to promote a better understanding of critical issues, and to move from understanding to a capacity to predict and manage, a new alliance with ICT and social sciences is needed.

The key component of the project is the *FuturICT Living Earth Platform:* a global data collection and analysis system feeding a network of sophisticated computer models that will simulate, analyze and visualize future scenarios of our world. It will include *Interconnected Observatories* to detect advance warning signs of impending crises and to find ways to alleviate them (e.g. in the areas of finance and health). The Observatories will provide tools that enable decision-makers to assess alternatives, using computer simulations to map out likely consequences of the available options. FuturICT will also build a *Global Participatory Platform* to benefit citizens, communities, small businesses, and NGOs, creating a whole ecosystem of new socio-inspired ICT applications and improved possibilities for social, economic, and political participation.

For its realization, FuturICT will require major investment into new ICT, data collection and handling, and the integration of diverse disciplines. As the project will also raise important ethical questions, an ethical dimension is regarded from the outset as an essential component of it. Without an enterprise of this sort, the world is sure to fall increasingly behind the reach of rational planning and management. Given the 21st century challenges we need to tackle, it would be

irresponsible, *not* to undertake a project of this ambition.

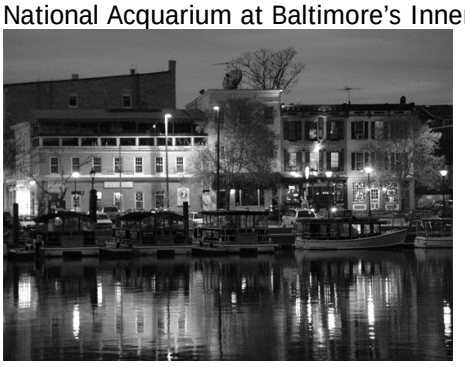
FuturICT is currently one of six pilot projects for the European Commission's Flagship Initiative, which aims to support visionary, 'Big Science' projects based in ICT. In mid-2012, at least two of these pilot projects will be selected for funding of up to 1 billion € each over 10 years. Professor Dirk Helbing from ETH Zurich leads the scientific endeavour, and Professor Steven Bishop of University College London is coordinating the pilot project.

Dr. Nick Stergiou *Nebraska Biomechanics Core Facility, University of Nebraska at Omaha*
Nick is a new member actively seeking to mentor new students. The Nebraska Biomechanics Core Facility (http://nbcf.unomaha.edu) has several positions available to pursue an MS/PhD degree for the Fall of 2012. The laboratory is focuses on developing a new understanding of the dynamical aspects of human movement. The laboratory is a flourishing enterprise where engineers, scientists and clinicians get together to gain additional insights on the complexity of healthy and abnormal movement patterns. The laboratory uses techniques from biology, engineering and mathematics to understand human movement variability. Dr. Stergiou also hosts a nonlinear dynamics workshopeach summer (http://nbcf.unomaha.edu/nonlinear12.php) that introduces research scientists, clinicians, educators, and students to a variety of nonlinear methods for the analysis of biological time series data. Contact information: nstergiou@unomaha.edu

Alexander B. Medvinsky, Alexey V. Rusakov, Nailya I. Nurieva ,*Institute of Theoretical & Experimental Biophysics,* Pushchino, Russia.
Applying nonlinear dynamics to revealing the mechanisms, which can impact predictability of population size oscillations. Usually, the variables in the mathematical models of population dynamics are assumed to take real values, which is to say that the population densities vary in a continuous way. Indeed, the population densities being averaged in space are real numbers. However, each of the unit areas of a habitat contains a whole number of organisms. Also, a total population size is naturally expressed as a whole number. Hence modeling with the use of discrete instead of continuous variables would provide more realistic description of population dynamics. At first glance, the difference between, for example, 100 animals inhabiting a unit area and the value of 100.5 as a spatially averaged population density is too small to lead to significant effects. However, it has been shown that a discrete-state analog of a continuous-state model exhibits purely cyclic behavior (Henson et al., Science 294, 602-605, 2001), whereas the continuous-state models demonstrate a larger variety of dynamical regimes, including chaotic ones. It is seemingly evident that predictability of the intrinsically cyclic dynamics (in contrast to chaotic dynamics) can be broken down by nothing but influence of external stochastic factors. In our paper, which is now in preparation, we demonstrate that external stochasticity is not the only mechanism limiting predictability of the discrete-state population dynamics. We show that predictability of the regular discrete-state population dynamics is limited by competition between non-chaotic attractors. These non-chaotic attractors emerge as a result of splitting of the continuous-state chaotic attractor when passing from continuous-state description of the population dynamics to the discrete-state models. We find predictability of the discrete-state time series to be dependent on the time scale. At the comparatively short time scales, the discrete-state population size oscillations are chaotic while at larger time scales, the discrete-state time series, which consist of many periodically repeating chaotic sections, are regular and well-predictable. So, we show that limits of predictability of the discrete-state population dynamics arise naturally even without taking into account external stochastic factors.

Historic Baltimore

This Colonial city's recorded history began around 1670. Historic Fell's Point was the primary shipping area, and now a favorite spot for locals and tourists alike – shops, restaurants, and reportedly 120 pubs all within walking distance of each other. Not to mention excellent seafood and the Chesapeake bay's featured oysters and blue crabs. Below: Scenes of Thames Street and a Civil War reenactment. Photographs by Jacqueline Greff. Right: Jellyfish Invasion exhibit at the National Acquarium at Baltimore's Inner Harbor.



Nonlinear Dynamical Bookshelf

Balagué, N. & Torrents, C. (2011). ***Complejidad y deporte (Complexity and sport)*****. Barcelona: INDE** (In Spanish). *New from SCTPLS authors!*

Brunner, E.J., Tschacher, W. & Kenklies, K. (eds.) (2011). ***Selbstorganisation von Wissenschaft (Self-organization of science)*****. Jena, Germany: Verlag IKS Garamond** (in German). *New from SCTPLS authors and editors!* This edited volume contains contributions presented during the 16th Herbstakademie meeting, held at Jena University in October, 2010. The series of Herbstakademie conferences, inititated in 1990, addresses various topics of complex dynamical systems in psychology and adjacent disciplines. The editors have collected chapters on the question of how self-organization theory and the structural sciences (such as mathematics, systems theory and cybernetics) serve to illuminate the phenomenon of "science": How do they describe the processes in natural sciences (*Naturwissen-schaft*) and the humanities (*Geisteswissenschaft*)? Can self-organization theory and structural sciences build a bridge, as is hoped by several authors of this volume, between these two major currents in the field of science? The possibility of such a bridging and integrating function is advocated by several of the authors. At the same time, different views become apparent between contributors who argue from a Luhmannian systems perspective (which is closer to *Geisteswissenschaft)* and others who are based on Haken's natural-science synergetics.

Chua, L. O. (2012). ***A nonlinear dynamics perspective of Wolfram's new kind of science, vol. 5.*** **Singapore: World Scientific. 350pp (approx.).** ISBN 978-981-4390-51-4. This penultimate volume contains numerous original, elegant, and surprising results in 1-dimensional cellular automata. Perhaps the most exciting, if not shocking, new result is the discovery that only 82 local rules, out of 256, suffice to predict the time evolution of any of the remaining 174 local rules from an arbitrary initial bit-string configuration. This is contrary to the well-known folklore that 256 local rules are necessary, leading to the new concept of quasi-global equivalence. Another surprising result is the introduction of a simple, yet explicit, infinite bit string called the super string S, which contains all random bit strings of finite length as sub-strings. As an illustration of the mathematical subtlety of this amazing discrete testing signal, the super string S is used to prove mathematically, in a trivial and transparent way, that rule 170 is as chaotic as a coin toss. Yet another unexpected new result, among many others, is the derivation of an explicit basin tree generation formula which provides an analytical relationship between the basin trees of globally-equivalent local rules. This formula allows the symbolic, rather than numerical, generation of the time evolution of any local rule corresponding to any initial bit-string configuration, from one of the 88 globally-equivalent local rules. But perhaps the most provocative idea is the proposal for adopting rule 137, over its three globally-equivalent siblings, including the heretofore more well-known rule 110, as the prototypical universal Turing machine.

Fleishman, A. N. (2010). ***Heart rate variability and slow hemodynamic oscillations: Nonlinear phenomena in clinical practice*****. Novosibirsk: Publishing House of SB RAS 2009. - 194 pp., 89 figures, 13 tables. (In Russian).** The manual deals with the modern data on heart rate variability (HRV), its physiological neuroautonomic bases. Nonlinear methods of the analysis, complex heart rate variability classification and HRV clinical syndromes are systematically described. Nonlinear aspects of HRV analysis, principles of clinical usage are concentrated. The manual is well illustrated (89 figures and 13 tables) that makes easier mastering the material and gives the chance to transfer the given manual to electronic educational form. Checking tasks to chapters and numerous literary references do the work with the manual convenient. In comparison with the previous editions the present manual includes new sections devoted to nonlinear phenomena (intermittency, limiting cycles, turbulence, intersystem synchronization, stability problems) and to the general principles of HRV clinical analysis. The manual is recommended for training students of medical universities, and also for physicians by the program of physiology of cardiovascular and autonomic nervous systems and functional diagnostics of autonomic disorders in neurologic and therapeutic clinic.

Fromberg, D.P. (2012). ***The all-day kindergarten and pre-k curriculum: A dynamic-themes approach*****. New York: Routledge.** *New from SCTPLS authors and editors!* Building on chaos and complexity theory principles, brain research, child development research, and curriculum research, the book specifies research-based practices about how children learn in activity-based learning environments. The book supports the confluence of seven integrated conditions for learning in early childhood-- induction; cognitive dissonance; physical engagement; social interaction; play and imagination; revisiting; and sense of competence--with indicators of self-regulation in the service of building meanings. This book is an antidote to factory-style, assembly-line early childhood classrooms. Practitioners can find both ideas for working with young children across the curriculum and the complexity and chaos rationales that support such dynamic, negotiated, and emergent education.

Kolm, J. (2011). ***Crocodile Charlie and the Holy Grail: How to find your own answers at work and in life*****. Penguin, Kolm & Ring**, ISBN 0-14-300123-X. *New from SCTPLS authors and editors!* 'Do you know

Crocodile Charlie, the boss?' asked the new employee, not realizing it was his boss he was speaking to. “The other staff briefed the hell out of me when I joined the firm. All the smile-crocodile stuff. Nobody seems to trust him. Is he really that bad?” After the shock of hearing what other people truly think of him, 'Crocodile' Charlie Kingmore embarks on a Quest. He has an urgent need to find the Secret of unified teams, productive people, and human happiness at work. It's that, or give up on his dreams for his own success. What to do? If you work for a living, work with other people, or ever need to inspire and lead those around you, then Charlie's journey for the Answer can be your journey too. Join authors John Kolm and Peter Ring, two of the world’s leading practitioners in this area, on Crocodile Charlie's six-month Quest around Australia to find some real results. Share in the expertise of industry leaders like Toyota, Alcoa, BHP, Cisco, Michelin, Rydges, Tattersalls and Westpac — all clients of Team Results, John and Peter's company — which form the basis of Charlie's adventures. If you have tried all the mundane approaches and are still looking for something more, maybe it's time you discovered...The Holy Grail.

Maritsas, C. (2011). ***Civilization and natural selection – Cogito ergo propago*****. Sofia: Domoplan.** ISBN 978-954-92793-2-0. *New from SCTPLS authors and editors!* In the beginning the book questions all ideas established for the reader, and then, together with him, develops an entire theory. And all this in simple, everyday words, the objective of the author is to explain the world without implementing any laws, objectives, principles, theories, causes and effects, but only reflections and everyday language free of "scientific" and "philosophical" conceptions. The book opens with the creation of the world and goes to the human (and more) civilization. The whole world around is explained in a few, but correct definitions. The author does not aim at convincing the reader in the rightness of the presented observations. He is rather trying to incite the critical thought by presenting his views and quoting several established philosophers. It is the very first time that a unique philosophical theory is created to explain everything from the creation of world until current civilization. For the first time all the terms of philosophy are strictly defined, such as: life, death, civilization, religion, miracle, art, imagination, love - eros, language, freedom, etc. The book analyses and criticizes famous and valorising philosophers and scientists such as: Darwin, Freud, D. Morris, etc. As far as Darwin is concerned, the book analyses and for the first time proves all his principles based on the 2nd thermodynamical law.

Maritsas, C. (2011). ***Megaliths in the Past and Present*****. Sofia: Domoplan.** (in English and Bulgarian), ISBN 978-954-92793-1-3. 90 Pages (text 50 pages, and 180 photos and diagrams). *New from SCTPLS authors and editors!* Offers provocative, sometimes strongly distinct from the generally accepted, insight into the ways of megaliths cultural interpretation. Megalithic culture has been the subject of studying for years, but Constantinos Maritsas argues that a new cultural mode of its interpretation will help us to understand the very important epoch of human history. The necessity of megaliths’ creation has appeared in the process of transition from the natural selection to civilization. The author emphasizes the original assignment of megalithic monuments: dolmens, menhirs, cromlechs, effigy mounds etc. So he analyses the most popular of existing hypotheses. Megalith is shown as a scene of primordial theatrical performances when the struggle for survival has been replaced with the symbolic fight-dance and the stones have been used for imitation of necessary natural objects. This book shows us megaliths we did not know. It shows the organic ties connecting megaliths’ origin, their history and their contemporary existence in different, sometimes unusual, forms. The main theoretical ideas are illustrated with well-known and new material from different cultures. The reader can see very interesting pictures from Machu Picchu, Bulgaria, Gobekli tepe, Stonehenge, and Korea.

Nicolis, G., & Nicolis, C. (2012). ***Foundations of Complex Systems: Emergence, Information and Prediction (2nd Ed.)*****. Singapore: World Scientific**. ISBN 978-981-4366-60-1. This book provides a self-contained presentation of the physical and mathematical laws governing complex systems. Complex systems arising in natural, engineering, environmental, life and social sciences are approached from a unifying point of view using an array of methodologies such as microscopic and macroscopic level formulations, deterministic and probabilistic tools, modeling and simulation. The book can be used as a textbook by graduate students, researchers and teachers in science, as well as non-experts who wish to have an overview of one of the most open, markedly interdisciplinary and fast-growing branches of present-day science. Contents: *The Phenomenology of Complex Systems*: Complexity, a New Paradigm, Signatures of Complexity. Onset of Complexity. Four Case Studies. *Deterministic View:* Dynamical Systems, Phase Space, Stability; Levels of Description; Normal Forms; The Limit of Universality; Deterministic Chaos; Emergence; Coupling-Induced Complexity; Modeling Complexity Beyond Physical Science. *Probabilistic Description:* Need for a Probabilistic Approach, Probability Distributions and Their Evolution Laws, The Retrieval of Universality, Complexity in the Probabilistic Description, Emergence Revisited, Transitions Between States, Simulating Complex Systems, Disorder-Generated Complexity. *Complexity, Entropy and Information:* Information Entropy, Dynamical Entropies, Information Entropy, Production, Large Deviations, Fluctuation Theorems and the Probabilistic Properties of Time, Sequences, Algorithmic Complexity and Computation, Dynamical Systems as Information Sources: Scaling Rules and Selection, Further Information Measures. *Prediction:* Communicating with a Complex System, Classical Approaches and Their Limitations, Nonlinear Data Analysis, The Monitoring of Complex Fields, The Predictability Horizon, Recurrence, Extreme Events. *Selected Topics:* The Arrow of Time, Nanosystems, Atmospheric Dynamics, Climate Dynamics, Networks, Perspectives on Biological Complexity, Equilibrium Versus Nonequilibrium in Complexity and Self-

Organization, Epistemological Insights from Complex Systems, The Future of Complexity.

Perper, T. & Cornog, M. (Eds.). (2011). ***Mangatopia: Essays on Manga and Anime in the Modern World.*** **Santa Barbara, CA: Libraries Unlimited.** ISBN-10: 1591589088; ISBN-13: 978-1591589082. *New from SCTPLS authors and editors!* In a dozen seriously written major analytical essays, all by experts, Mangatopia discusses Japanese cartooning (manga and anime) and their roots in international and transnational aesthetics, fan society, and politics. The essays go well beyond the "Japanese Comics 101" stage and reflect without being impenetrable the fascination with which Americans and European readers view these complex and striking forms of art. Mangatopia contains solid, thoughtful essays of interest to everyone concerned about the future of popular culture, the popular media, graphic narrative, and the story. The first section deals with sexually explicit manga drawn and read by women, the roots of manga in Japanese and world film, and with the ability of manga and anime to create thoroughly believable worlds of fantasy. The second section looks at fan activities, including "cosplay" (dressing up in public like your favorite character), examines fan-drawn manga showing male-male romances and sexual activity, and describes how fans make complex judgments about what they do and do not like. The third section centers on politics, including right-wing manga, manga about Hiroshima, and despair following World War II, and ends with an overview of the international appeal of manga and anime.

Tschacher, W. & Bergomi, C. (eds.) (2011). ***The implications of embodiment: Cognition and communication*****. Exeter, UK: Imprint Academic.** *New from SCTPLS authors and editors!* Embodiment goes beyond a neurobiological interpretation of cognition. It rests in the much broader idea that the body— including behaviors such as facial expression, movement, prosody, gesture, and posture but also its morphology and its embedding in a social and ecological environment — influence, and at the same time are influenced, by the mind. Embodiment research is not restricted to neurobiology but includes behavior observation, subjective assessments and engineering approaches/robotics as well. Embodiment research involves the complete range of measurements and methods in psychology and biology. The most general way to think of the implications of the embodiment perspective is to acknowledge a simple fact: there is no easy way of circumnavigating the mind-body problem. While the word 'embodiment' seems to emphasize the body as the means of every cognitive act, it also points to that which is embodied: The mind. In contrast to the currently prevalent tendency towards the reduction of mental processes to their neural correlates, the embodiment perspective emphasizes the mutual influence and interconnectedness of body and mind. To conceive of the mind as embodied means that the mind must be viewed in its context. Three different contexts 'come to mind' here: the context of the body and body movement (embodied cognition), the context of the physical environment (situated cognition) and the social context (embodied communication). Functional mental processes need the interplay of both mind and context, of both perception and action, of both cognition and social resonance. Mind and context are different, yet both form a necessary unity. Such embodiment positions have been proposed repeatedly in the last two decades, during which different fields have converged in their views on mental process: Dynamical systems theory (e.g. Haken's synergetics), philosophy of mind (e.g. Lakoff & Johnson), biology (e.g. Varela's enactive approach) and psychology (experimental social psychology and Neisser's situatedness). What are the commonalities in this broad movement of embodiment? In addition to the defining characteristics of embodiment — the mind is understood fully only as embedded in its context — one may notice that an emphasis on the social embedding of the mind has come to the fore. Secondly, the core concept of 'embedding' and 'context' are also basic to systems theory and complexity theory. Thus, the most elegant way to conceive of embodiment may be to apply dynamical system theory: Embedding parameters of the body and the environment drive a complex system, thereby generating pattern formation at the microscopic mental level of the system.

GREETINGS FROM BARCELONA!

The conference was wonderful. Hats off to our local hosts Jose Navarro (Conference Chair) and Shana Narayan for all the fine arrangements, and to all our guests for the excellent presentations and for just being themselves. The abstracts to the 5th International Nonlinear Science Conference are available: www.societyforchaostheory.org/conferences.html

Below: Dinner self-organized in the gothic district. Left, foregoing to back: Ulrich Junghan, Wolfgang Tschacher, Matthis Koopmans, Ria Koopmans, Fabian Ramseyer, Hussain Erjaee. Right: back to front: Alex Dawoody, Dimitrios Stamovlasis, Kristin Kinsfogel, David Pincus.

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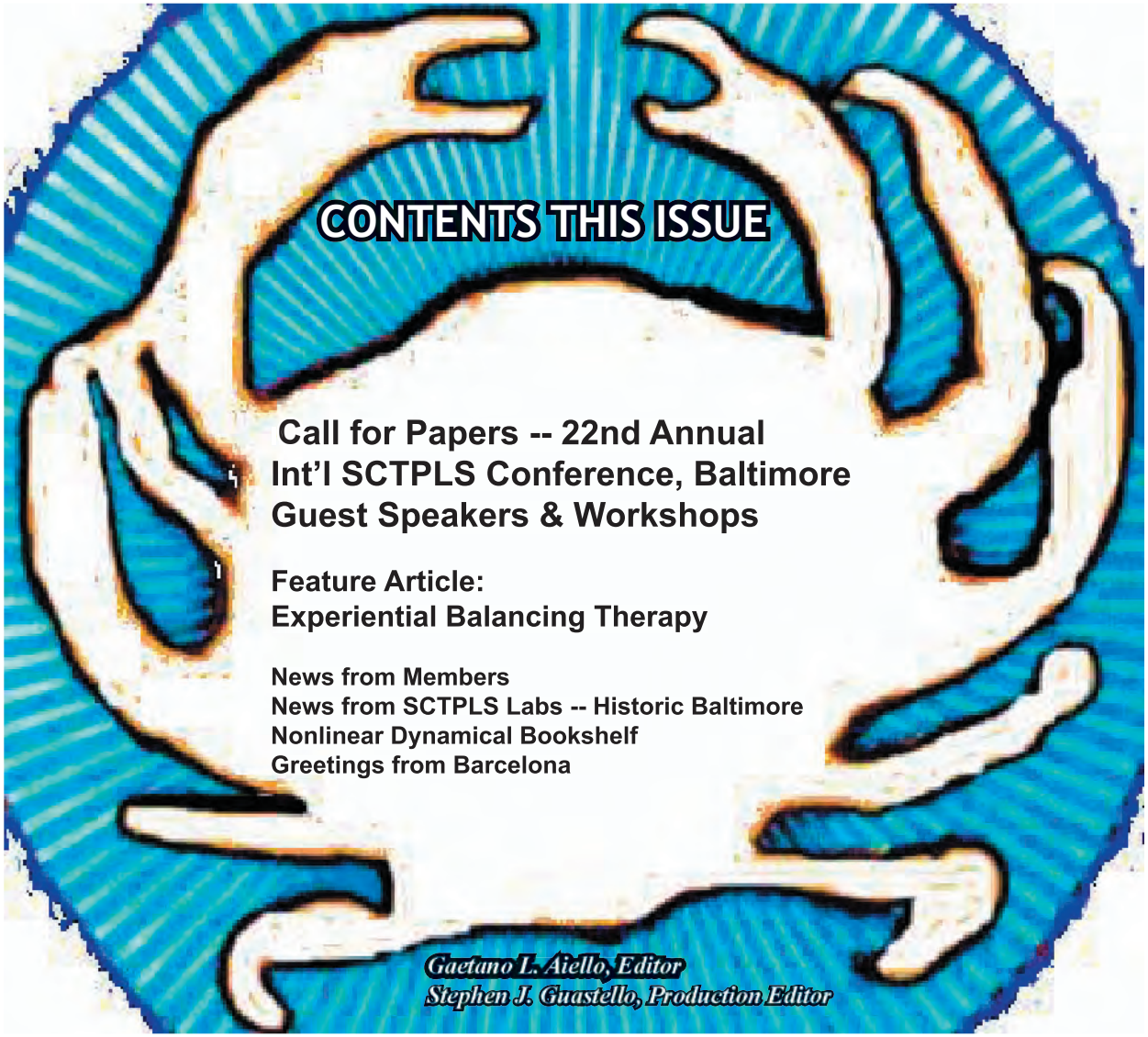

CONTENTS THIS ISSUE

Gaetano L. Aiello, Editor
Stephen J. Guastello, Production Editor