

Society for Chaos Theory in Psychology & Life Sciences NEWSLETTER

INSC 2008 in Tokyo

Volume 14, No. 3
April 2007

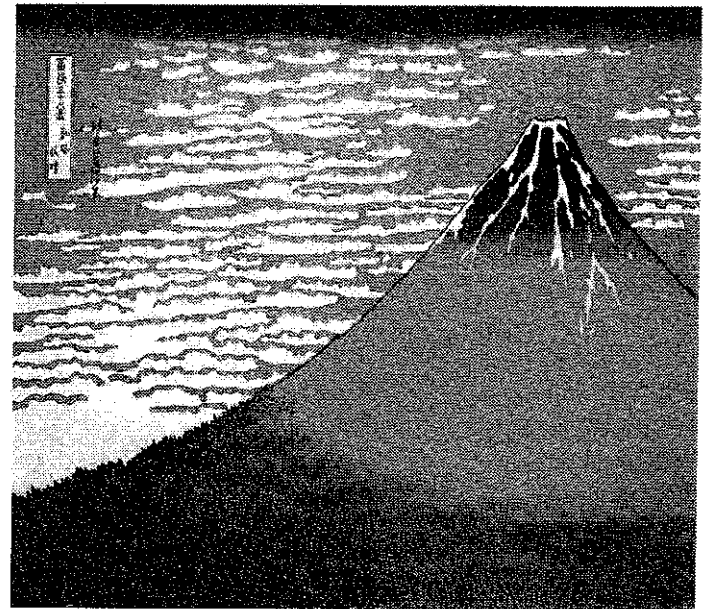
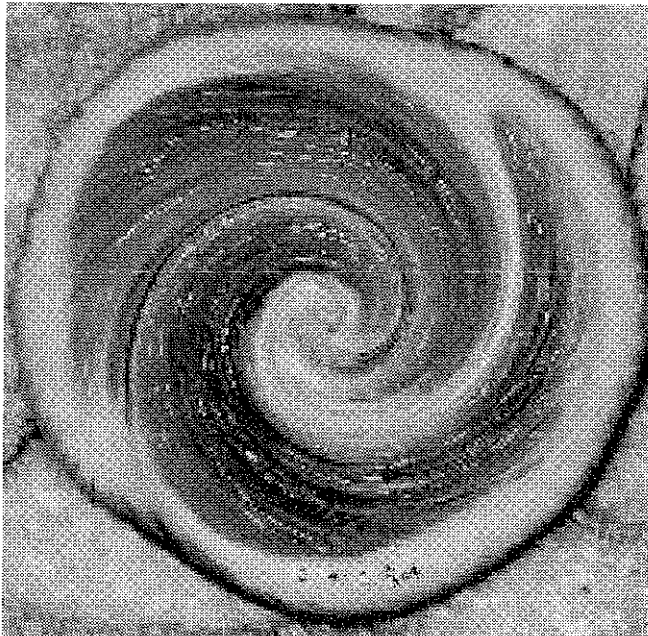
Matthijs Koopmans
President

Koen DePryck
Editor

Stephen Guastello
Production Editor

SCTPLS is proud to announce that the third International Nonlinear Science Conference (INSC) will be held at Chuo University, Tokyo, Japan, March 13-15 2008. The conference is organized in conjunction with the Japanese Association for Evolutionary Economics and the Tokyo Research Laboratory of IBM, Japan in connection with the 100th anniversary of Chuo University. The conference is part of the by now established tradition to organize an international conference to provide our members at home and abroad an opportunity to congregate, share ideas and research findings and to forge new collaborative relationships. Previous INSC conferences were held in Heraklion, Crete, Greece in 2006 and in Vienna, Austria in 2003.

A call for papers will be posted soon, and more details will follow about accommodations and other logistics.



Inside -- Stuff you need to know about

**Call for Papers! Speakers! Workshops! Registration Materials!
17th Annual International SCTPLS Conference
Orange, CA July 27-29, 2007**

News from Our Members

Tobi Zausner recently published *When Walls Become Doorways: Creativity and the Transforming Illness* (Harmony Books / Crown / Random House, February 2007). The book is about recovering from physical illness and accidents using creativity as a tool for resilience. "It shows how physical difficulties can act like a period of chaos that may be the beginning of a new and more creative life. The examples I give in the book are from the lives of visual artists, but what I call a transforming illness is a phenomenon fundamental to human nature."

Tobi gave a talk at the San Mateo County Psychological Association entitled *The Psychology of the Transforming Illness*, and will be speaking at the C. G. Jung Foundation on May 1st. She has also committed to speaking for cancer organizations like SHARE in New York (for breast and ovarian cancer survivors) and the Wellness Center in NJ (for survivors of many types of cancer), and has been asked to be the keynote speaker for the National Ovarian Cancer Coalition at their event in Princeton, NJ. at the San Mateo County Psychological Association, San Mateo, CA.

Brock University has established the **Mohammed Dore Graduate Scholarship**. The scholarship, endowed by Mr Roelof Makken, one of Mohammed's former graduate students, is in perpetuity and is open to students at Brock University doing graduate work in Economics and Business.

Matthijs Koopmans recently joined the Academy for Educational Development. He will conduct research on school reform and its dynamical underpinnings, and evaluate promising programs and initiatives implemented in urban public schools.

Michael Radin earned tenure and has been promoted to Associate Professor of Mathematics at the Rochester Institute of Technology, College of Science. He is also organizing a Workshop on Dynamical Systems at BIRS (Banff International Research Station) in Banff, Alberta from June 22-24, 2007.

Maria Karanika earned her Ph. D. at the University of Nottingham. Her dissertation is entitled "An appeal to reality: Modeling nonlinear health-work relationships in the context of risk management."

NEW ARTICLES BY SCTPLS MEMBERS

Heiby, E M., Pagano, I., Blaine, D., Nelson, K., & Heath, R.A (2003) Modeling unipolar depression as a chaotic process. *Psychological Assessment*, 15, 426-434.

Pagano, I. S., Barkhoff, H., Heiby, E. M., & Schlicht, W (2006) Dynamical modeling of the relations between leisure activities and health indicators in a cross-national sample. *Journal of Leisure Research*, 38, 61-77.

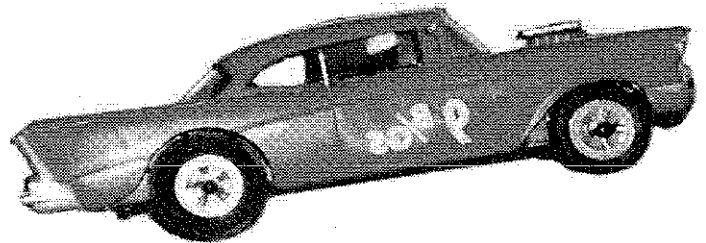
Heath, R., Heiby, E.M & Pagano, I. (2007). Complex dynamics in depression: An application to long-term, mood-rating time series. In R. W. J Neufeld (Ed.) *Advances in clinical cognitive science*. Washington, D.C.: American Psychological Association (pp. 263-291).

WORKSHOP ANNOUNCEMENT: APA Advanced Training Institute on Nonlinear Methods for the Behavioral Sciences

The application deadline is March 26 for this in-depth training program, which will take place June 11-15, 2007 at the University of Cincinnati. Applications are invited from new and established faculty, researchers, post-docs, and advanced graduate students. Applicants who have financial need can request travel scholarship support through APA.

This workshop teaches nonlinear methods for behavioral science, and provides each participant with the first-hand experience of having analyzed data for nonlinear structure. On the first day of the workshop each individual generates data that they will learn to analyze during the ATI. Continuing access to the software that will enable them to perform further nonlinear analyses is provided by instructors at the conclusion of the ATI. Instructors include Drs. Guy Van Orden, Michael Riley, Kevin Shockley, and John Holden.

The NLM program is one of the 5 ATIs that will be sponsored by the APA Science Directorate in 2007. These hands-on events tackle the big issues confronting researchers who use (or want to use) these innovative methodologies. Through lecture, labs, and discussions, ATI instructors discuss how the topics are applied to psychology. When possible, discussions and demonstrations will be matched to the specific research interests of attendees as described on the registration forms. More details about this exciting program can be found at <http://www.apa.org/science/ati.html>



Sabelli, H & Kovacevic, L. Quantum Bios and Biotic Complexity in the Distribution of Galaxies. *Complexity* 11: 14-25, 2006.

Sabelli, H and L. Kovacevic. Biotic Population Dynamics and the Theory of Evolution. *Proceedings of the International Conference on Complex Systems. NECSI. Inter Journal 2006*
http://www.interjournal.org/manuscript_abstract.php?82762892

Thomas, G H, Sabelli, H., Kauffman, L. H., & Kovacevic, L. Biotic patterns in Schrödinger's equation and the evolution of the universe. *Proceedings of the International Conference on Complex Systems NECSI. Inter Journal 2006*
http://www.interjournal.org/manuscript_abstract.php?1161328888

Sabelli, H. Bios Theory of Physical, Biological and Human Evolution. In *Explorations in Complexity Thinking*. Edited by Kurt A. Richardson & Paul Cilliers. ISBN: 0979168813. ISCE Publishing (2007).

Sabelli, H. & Thomas, G. The Future Quantum Computer: Biotic Complexity. In *Reflecting Interfaces: The Complex Coevolution of Information Technology Ecosystems*. Edited by F. Orsucci and N. Sala. Idea Group, Hershey. (in press).

The Double Bind

A Novel, by Chris Bohjalian. New York: Shaye Areheart. 368 p.

Reviewed by Matthijs Koopmans (Academy for Educational Development)

Double bind theory is the brainchild of Gregory Bateson and his colleagues. About half a century ago, they proposed an association between schizophrenia and the exposure to and participation in dysfunctional processes of communication, particularly those where assertions are simultaneously made and denied, while decoding those assertions is of critical importance to the participants in the communicative episode. There has been a modest body of research around this idea, most of it conducted in the nineteen –sixties and early nineteen seventies. The findings offer some support for the theory, but not very much. As a scientific theory, double bind went under, as schizophrenia scholars began to focus more on other topics, such as the constitutional factors underlying the disorder. However, the notion of being ‘in a bind’ when faced with contradictory injunctions has become an idiomatic expression fully integrated into the English language.

The double bind literature suffers from a paucity of good examples of what exactly is a double bind and how it manifests itself empirically. To understand how binds might play a role in the lives of individuals requires a detailed study of the particularities their relational context, something that researchers have not been as well equipped to do as clinicians and, perhaps, novelists. Chris Bohjalian’s novel misses an opportunity to remedy this situation. While the book is very readable in its own right, it does not delineate very clearly what the binds are that occur in the exchanges between the characters.

The double bind is appropriately concerned with trauma, homelessness, strange family dynamics and mental illness. The story revolves around Laura Estabrook, who, as a college sophomore is sexually assaulted while riding her bike on a rural road somewhere in Vermont. She seems to recover from this traumatic experience and is employed at a homeless shelter in Burlington. A former regular of that shelter, Bobbie Crocker, upon his death leaves behind a box of photographs and negatives which fascinate Laura to such an extent that she embarks on a research project to learn more about what these photographs reveal about his life. Her research takes her to a wealthy Long Island family where Bobby may or may not have grown up, and Laura visits one of his putative siblings, who denies being a sibling but insists being entitled to keep the photographs herself because she appears in one of the pictures. These as well as other instances of confused identity, confusions of parentage, etc. are binding situations, although their pathogenic significance is not made very clear. As the story progresses, Laura’s investigation of the photographs is perceived by her significant others as becoming increasingly idiosyncratic and obsessive. As her search progresses, the apparent connection between it and her own trauma gradually come into focus. It its reliance on past experiences to attempt to understand Laura and Bobbie’s life trajectories, this story is more illustrative of more traditional psychoanalytic approaches than double

bind approach which situates the etiology of mental illness firmly in the present.

In spite of all these considerations, there is something deeply intriguing about this story, and how it is presented, interspersed with psychiatric case notes. Also shown throughout the book are actual photographs that were left behind by a non-fictional homeless and mentally ill person, photographs showing intense focus on the object and an almost hyper-esthetic quality.

Literature is rich with good fictional case studies of mental illness, the pathologically destructive father-son relationships in *The brothers Karamazov*, the crazy woman in the attic in *Jane Eyre*, the complex separation-individuation issues in *The glass menagerie*, etc. Of double bind in particular, better examples may also be found in other fictional accounts, such as the weird duplicity in much of Paul Auster’s or Philip Roth’s work. *The double bind* lacks the kind of salient particularity that make those other works so enriching and significant in helping us better understand the origins of psychopathology, one area in which traditional psychological reductionism has tended to distract us a more thorough investigation of the role of context in the study of the origins of mental illness.

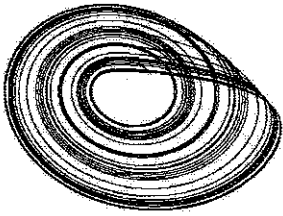
What are Dynamic Decisions?

Stephen Guastello, Marquette University

Although the idea has, in principle, been around nearly twenty years, the concept of dynamic decisions has gained some newfound attention in human factors engineering and ergonomics. Dynamic decisions involve a regular series of decisions, decisions that are not independent of each other, a problem situation that changes either autonomously or by virtue of the person-system interaction, and decisions that are made in real time (Brehmer, 2005, p. 77). The time-phased inflow of information induces dynamics and thus adds a dimension of complexity to the decision situation. Time pressure and feedback delays also place demands on the human operator (Jobidon, Rousseau, & Breton, 2005). On the other hand, one report (in Brehmer, 1987) indicated that decision makers who performed a simulated fire-fighting task under conditions where they knew there was a delay in the inflow of information did not make decisions any differently from those who worked in conditions where there was no delay. In other words, there was a tendency not to take known delays into consideration when formulating strategies from available information.

Computer-based games have served as a medium for studying dynamic decision making. Their advantages are that they can record stimuli presented to the participants, and record their responses. They can also be designed to allow the experimenter to manipulate rules and scenarios in a controlled fashion (Rollo & Dias-Cabrera, 2005). Games can be designed as realistic representations of real

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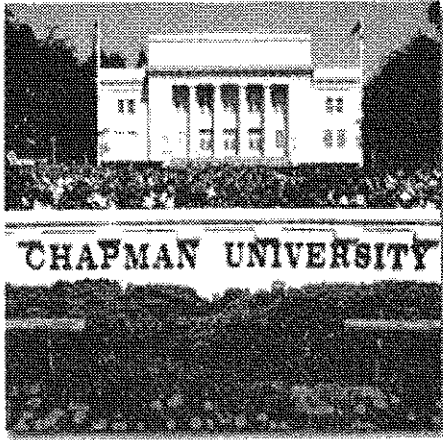


Society for Chaos Theory in Psychology & Life Sciences

17TH ANNUAL INTERNATIONAL CONFERENCE,

Chapman University, Orange, CA, USA

July 27 – 29, 2007



The Society for Chaos Theory in Psychology & Life Sciences (SCTPLS) will host its annual meeting at Chapman University in Orange, CA this year. The conference provides a unique opportunity for scholars and practitioners working in the field of nonlinear dynamical systems to report research, network and exchange ideas with like-minded individuals and congregate in a pleasant collegial environment. The SCTPLS, founded in 1991, is the oldest Society of its kind. It has continued over the years to provide leadership in the area of dynamical systems modeling and it has been instrumental assisting the scholarly community at large with the adoption of nonlinear dynamical concepts in its theory building and research. Through its annual conferences, SCTPLS serves its mission of nurturing and further developing the dynamical intellectual tradition, which originates in antiquity and continues to this day to provide an impulse of innovation in scientific research and theory building, social and life sciences in particular. Researchers interested in participating are encouraged to consider submitting their work for inclusion in what promises to be an excellent conference program.

changed its name to Chapman University, reflecting its evolution into a comprehensive institution of higher learning (Chapman University, 2007).

CALL FOR PAPERS

We invite all interested scholars to submit abstracts reporting work involving chaos theory, fractals, nonlinear dynamics, complex systems, and related topics. The program will include 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 contributors to consider alternative presentation formats, such as product demonstrations, short workshops, debates around controversial topics, and roundtable discussions. To submit an abstract please visit our website at:

http://www.societyforchaostheory.org/conf2007/cfp**

**DEADLINE FOR
ABSTRACT SUBMISSIONS IS
APRIL 29, 2007
April 8th for Early Response**

SCTPLS 17th Annual International Conference
July 27-29, 2007
Orange California



VENUE

Chapman University was founded in 1861. It is one of the oldest, most prestigious private universities in California. Originally called Hesperian College, the school later merged with California Christina College in Los Angeles. In 1934, the institution was renamed in honor of C.C. Chapman, an Orange County entrepreneur and benefactor of the school. The college moved to its current location in downtown Orange, California in 1954. In 1991, the college again

INSTRUCTIONS FOR PRESENTERS

Abstracts should be between 150-250 words for posters, individual papers, short workshops and other alternative formats. The connection to nonlinear dynamics, chaos, complexity, fractals or related concepts should be clear to the reader.

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. Symposium organizers are encouraged to include a discussant. For panel discussions, abstracts should provide a brief overview of the topic, and indicate the relevant background of the panelists 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 a series of questions or issues (rather than giving a series of presentations).

Each person submitting is limited to a **maximum of two presentations** as first author (okay to be a co-author on additional submissions by others).

LOCATION, ACCOMMODATIONS, REGISTRATION AND AIRPORTS

Chapman University will host the conference, and convenient (and very affordable) lodging has been arranged on site. Early **Registration fees** for the conference will be US \$195 for regular members, \$135 for student members and \$270 for non-members until July 15, 2007. After July 15, the on-site registration rates of \$210/160/285 will apply. The banquet dinner on Saturday July 28, 2007 and refreshments during the conference are included with your registration

Official lodging for this conference will be booked through the Society for reservations at Chapman University. Room rates for single occupancy are \$125 for the 2-night package July 27, and 28, and \$65 for additional nights. See website for additional information about lodging.

AIRPORTS

Chapman University is conveniently accessed by several major airports.

John Wayne Airport (SNA) approximate travel distance: 12 miles

Ontario International Airport (ONT) approximate travel distance: 35 miles

Los Angeles International Airport (LAX) approximate travel distance: 39 miles

San Diego International Airport (SAN) approximate travel distance: 90 miles

Transportation from the airport may be arranged by shuttle or rental car. One-way shuttle services begin at approximately 21.00 from John Wayne, 53.00 from Ontario and 45.00 from Los Angeles; see supershuttle.com for more information and reservations. Numerous rental car options are available at the airport and on-line. See expedia.com for more information.

PUBLICATION OPPORTUNITY

All presenting conferees are further invited to prepare their papers for review and possible publication in the Society's research journal *Non-linear Dynamics, Psychology, and Life Sciences*. NDPLS is peer-reviewed and abstracted in *PsycInfo (Psychological Abstracts)*, *Medline (Index Medicus)*, and *JEL/Econlit*. 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.**

ANY QUESTIONS?

Contact Dr. Ivelisse Lazzarini, SCTPLS Program Chair:

ilazzarini@creighton.edu

Critical Dates for the Conference Preparation

June 1 Students who have a paper accepted for presentation must be active members by this date in order to qualify for a scholarship conference fee waiver. Qualifying students should contact Dr. Ivelisse Lazzarini, Program Chair if they are interested in this opportunity.

June 3. Preliminary program of speakers and abstracts will be available on the SCTPLS web site.

July 1. All speakers must register by this date to remain on the program.

July 2. Cancellations of conference registration and lodging will be subject to a 25% service charge starting on this date.

July 8. Last day for lodging at the university facility. After this date we cannot guarantee availability.

July 15. Last day for early-bird registration.

July 16. Cancellations of conference registration and lodging will be subject to a 75% service charge starting on this date.

July 25. We regret that we cannot offer any refunds for cancellations received after July 24.

CONFERENCE EVENTS DATE/ DESCRIPTION

July 26

Thursday! Arrive if attending morning workshops next day or starting the fun early!

July 27

Friday! **Registration & Workshops, Sunset Session - Guest Speaker: Dr. Bill McKelvey**

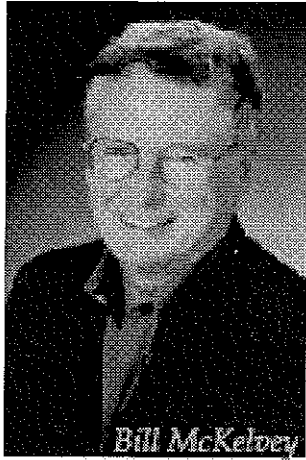
July 28

Saturday! Conference Day **Banquet - Guest Speaker: Dr. Bruce West**

July 29

Sunday! Conference Day: Annual business meeting

SUNSET SESSION GUEST SPEAKER



Why Power Law Phenomena Serve to Integrate Chaos and Complexity Dynamics

Bill McKelvey, Ph.D.

Dr. Bill McKelvey received his Ph.D. from MIT, 1967. He is a Professor of Strategic Organizing and Complexity Science at UCLA's Anderson School. McKelvey's *Organizational Systematics* book remains a definitive treatment of organizational taxonomy and evolution. He directed over 170 field study teams on strategic improvements to client firms. In 1997 he initiated activities leading to the founding of UCLA's Center for Complex Human Systems & Computational Social Science. McKelvey has co-edited *Variations in Organization Science* (1999) and special issues of *E:CO* and *JIT*. He has 40 publications on complexity science applied to organizations.

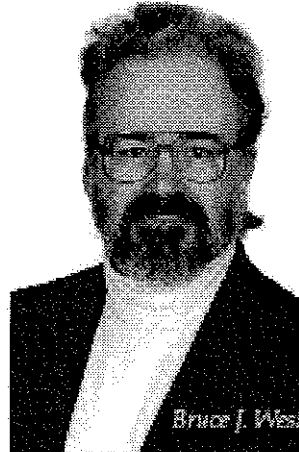
Chaos theorists define fractals in terms of attractor basins; complexity theorists define them in terms of rank/frequencies. Barabási's scale-free theory of preferential attraction combines both, with nodes as the attractors appearing in a rank/frequency power law. Andriani and McKelvey show seventeen different scale-free theories explaining many, but not necessarily all of the 80 kinds of power laws in the literature. Power laws are like weeds popping up all over the place. Chaos and complexity theories join in their focus on fractals, but with two basins of attraction thereafter: chaos theory uses catastrophe to further explore the increasing frequency of attractors; complexity theory and econophysics now attend to power law phenomena and scale-free theories.

Gell-Mann distinguishes between (1) the traditional regularities of normal science studied by reductionism using equations to formalize law-like algorithmic reductions; and (2) scale-free regularities appearing across multiple levels of "living" systems, which stem from chaotic, tiny initiating events to become frozen accidents. Here, elements of chaos theory and complex adaptive systems (CAS) are combined to highlight a fundamentally different kind of regularity requiring different kinds of scientific methods. Chaos and complexity theories are again joined. Since all living systems are under adaptive pressure, it follows that the second regularity is ubiquitous.

Since 1950 species-abundance biologists such as Preston, MacArthur and Holling along with SFI's Per Bak, a physicist, have suggested lognormal/power law phenomena represent a natural law of efficacious adaptation, ranging from moths to earthquakes and wars.

(continued p. 8)

BANQUET GUEST SPEAKER



The Average Person is Truly Exceptional:

Where Medicine Went Wrong

Bruce J. West, Ph.D.

Dr. Bruce J. West received his Ph.D. in Statistical Nonlinear Physics from the University of Rochester in 1970. At present, he is the Chief Scientist of the Mathematical and Information Science Directorate at the US Army Research Office.

Previously, he was a research scientist at La Jolla Institute, and for ten years a professor of physics in the University of North Texas. Over the years, his research interest has consistently focus in the application of nonlinear dynamics to biomedical and social phenomena. He has published eight books in these areas over the past twenty years at various levels of mathematical sophistication, founding such research areas as fractal physiology. He has published over 250 research articles; is a Fellow of the Army Research Laboratory; and a Fellow of the American Physical Society. Dr. West most recent work entitled: *Where Medicine Went Wrong* is the inspiration for his SCTPLS 2007 presentation.

In the nineteenth century scientists began a systematic study of society using tools from the physical sciences. One such tool was statistics and the bell-shaped curve of Gauss. Today students are often graded with the expectation that a certain fraction will have A or F, a larger fraction will have B or D and most students will obtain a grade of C. This expectation is based on the statistics of Gauss, the average value and the notion that life ought to be fair.

We will explore the fallacy behind the reasoning for applying the bell-shaped curve to such complex phenomena as learning/teaching. In fact, I will argue that it is only in the physical sciences that phenomena are sufficiently simple that the statistics of Gauss apply; in the social and life sciences it is the inverse power law of Pareto that describes phenomena. From the distribution of wealth to the beating of the human heart we find that life has a fundamental imbalance, both in the distribution of wealth and in the measures of health.

The presentation will provide data from the life and social sciences so the audience will be able to follow the arguments without the burden of mathematics.

THREE EXCITING WORKSHOPS

Three extremely exiting workshops will kick off our conference in Orange, California. Dr. Guastello (Marquette University) will conduct a basic nonlinear dynamics workshop. Dr. Terrill L. Frantz (Carnegie Mellon University) will conduct an agent-based modeling hands-on workshop, and John and Jo Lee Loveland Link (Volvox, Inc.) will offer The Chaos, Inc.™ a simulation workshop that can serve as an "on ramp" for participants new to chaos and complexity, as well as a robust experience for more sophisticated practitioners. Below are abstracts for each workshop as well as a biographical sketch of the workshop moderators.

BASIC NONLINEAR DYNAMICS

Facilitator: Stephen J. Guastello, Ph.D.
Introductory Level

The workshop will provide an introduction to the basic concepts of nonlinear dynamics – attractors, bifurcations, fractals, chaos, self-organization, catastrophes, cellular automata and agent-based phenomena. The first phase of the workshop provides an overview of all these concepts with emphasis on how they have reframed our thinking about many processing in psychology and the life sciences that change over time. The second phase of the workshop considers most of the foregoing dynamics in greater depth with emphasis on the principles that connect them (agent-based phenomena are covered in depth in a separate workshop). Techniques for data analysis will be discussed as time permits.

Stephen J. Guastello is a Professor of Psychology at Marquette University, Milwaukee, WI, where he specializes in industrial-organizational psychology and human factors engineering. He received his degrees in Psychology from The Johns Hopkins University, Washington University (St. Louis), and the Illinois Institute of Technology. He has written three books and over 100 journal articles and book chapters on various topics in psychology, most of which involve nonlinear dynamics. He is a past president of SCTPLS and currently editor in chief of its research journal, *Nonlinear Dynamics, Psychology, and Life Sciences*.

SOCIAL AGENTS: ANALYZING AND SIMULATING SOCIAL-SYSTEM DYNAMICS

Facilitator: Terrill L. Frantz, Ph.D.
Advanced Level

This hands-on workshop leads participants through a process of analyzing the prior and simulating the future dynamics of a large group of agents using data from a real-world business organization. Using the Enron email corpus, containing a historical record of communications in the now-defunct organization from 1999-2002, participants will be introduced to and will be provided with hands-on exercises using state-of-the-art software to investigate the various social networks from the point-in-time and over-time perspectives. Then use agent-based simulation techniques to project the dynamics of the same social system into the future.

This workshop is specifically designed for those with experience in agent-based modeling techniques, however, material will be presented in a manner understandable to those new to simulations and social network analysis. The Organization Risk Analyzer (ORA) and DyNet software applications from Carnegie Mellon University will be the primary tools used in this workshop. Participants will be provided with the software (for Windows PCs only).

Terrill L. Frantz is an experienced IT Manager and Administrator accomplished in supervision of global software development and technology organizations and projects. His successful career focus in combining technical and soft skills to lead effective departments, project teams, and deliver technology solutions. He is well experienced in complex, cross-cultural, and fast paced service-oriented environments.

THE CHAOS, INC.™

Facilitators: John and
Jo Lee Loveland Link
Intermediate to Advanced

The Chaos, Inc.™ simulation and seminar is a unique experiential exercise that applies Chaos and Complexity insights to strategy and management of real-world social and organizational systems. Chaos, Inc.™ draws on techniques of experiential group dynamics, collaboration methodologies, jazz, improvisation, and social science laboratory exploration and action learning to provide a reality-grounded experience to engage, observe, respond to, and shape complex adaptive systems. Together, we enter an environment of co-learning and exploration.

Chaos, Inc.™ was initially developed because, as systems practitioners, we were interested in how well actual organizations handle increasing turbulence, unpredictability, and change of the 21st Century marketplace. Therefore, in Fall of 1990, we designed and presented the original seminar under the name "Flying Chaos Workshop" at the Chaos Network Conference. Initially designed as a research tool to evolve and test hypotheses on emerging chaos and complexity concepts as applied to actual organizations, the simulation, renamed Chaos, Inc.™ is now receiving interest from increasingly complex-systems-savvy organizations. Chaos Inc.™ continues to apply this action research approach to investigation and learning. Highly dynamic and evolving, Chaos Inc.™ outcomes and insights from each iteration are intriguing, diverse, and help build toward next iterations.

Chaos, Inc.™ opens with an introduction to social systems-relevant chaos and complexity concepts in general and requires no previous knowledge of chaos /complexity by participants. Next, participants enter a well-defined simulated "company," which is subjected to events and pressures typically encountered in contemporary organizations. In response to these encounters, the "company" develops in varied routes to various stages (Continued p. 8).

McKelvey (continued from p. 6)

Murray Gell-Mann's second regularity gives more credence to this idea: (1) a multi-level system must have scalable dynamics at multiple levels for adaptive success; and (2) efficaciously adaptive CAS dynamics, and indications of them, should exhibit power law signatures explainable via scale-free theories. There are a growing number of clues suggesting this idea to be correct. We already know this to be true with at least one core feature of human life—the best indicator of impending heart attack and death is a non-fractal heartbeat!

Additional and better tests of this idea should be at the top of chaos and complexity researchers' agendas. If the basis for believing that power laws are indicators of efficacious adaptation strengthens—is proved broadly true—it follows that scale-free, nonlinear dynamics are indeed the core feature of all living systems.

Link & Link (continued from p. 7)

Participants find themselves facing multiple types of equilibrium or chaotic states. Participants find themselves facing multiple (often self-generated) dilemmas. Mid-way, simulation participants have an opportunity for organizational redesign. Chaos, Inc.™ participants are challenged to reinvent their simulated company to create a more adaptive, evolvable, or sustainable organization. Then, participants have the chance to test their new strategies all the while building assets and new approaches they can leverage to their own "back-home" organizations. Unlike most organizational workshops or training (but like real-world organizations), this simulation is a true experiential laboratory. Participants are not provided with "canned" answers or predetermined outcomes. Simulation companies may become mired in dead-end solutions — or they may evolve into new and more "chaos-adaptive" or change-resilient structures. Whatever happens, there are lessons to be learned from "retroactive observation" that can lead to strategic foresight for future adaptive efforts.

Presented over the past 15 years to a wide variety of organizations in business, the military, government, education, and academia, the Chaos, Inc.™ Simulation and Seminar itself continues to evolve into a robust and relevant instrument for looking at and building new, more powerful organizational strategies.

John & Jo Lee Loveland Link from VOLVOX Inc. merged professional and personal lives in 1991. They bring together more than 2 decades each as social scientists in private practice applying

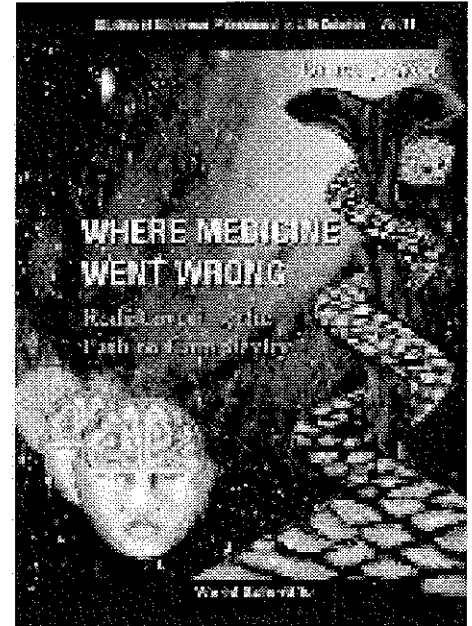
creative approaches to real-world organizational ecologies. The Links have worked with government and industry, developing a specialized expertise in information technology and software development enterprises. This arcane environment is both highly resistant to conventional social systems approaches as well as, paradoxically, also highly receptive to concepts aligned with their own frames of reference. Having worked frequently with cross-enterprise, cross-domain, and cross-technology initiatives, the Links have frequently encountered organizations that have never been together in one room before. Since 2003, the Links have worked with the Department of Defense Office of the Chief Information Officer, Intelligence Community organizations, and other government bodies, creating new forms of governance and multi-enterprise collaboration (both social and technological) for the emerging field of Net-Centric information sharing.

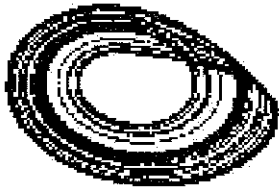
John Link has a master's degree in Conflict Management from George Mason University and applies principles of dispute resolution systems design and mediation to building negotiated agreement-based organizations and governance and performance management structures. He led an initiative of the federal-state-local integrated effort of the Chemical Stockpile Emergency Preparedness Program (CSEPP) of FEMA, U.S. Army, and state and local government emergency management associations, to chart plans and fuse technology approaches for a leading state-based rapid warning system. He has worked with business enterprises from small entrepreneurship to multi-national companies.

Jo Lee Loveland Link has advanced education in Applied Behavior Science and Organizational Systems Dynamics through the Mid-Atlantic Association of Training and Consulting. She was a Visiting Scientist for the Carnegie-Mellon University Software Engineering Institute, where she consulted with a wide variety of government technology organizations. She also has a background developing advocacy and social change organizations, including civil rights, nontraditional political systems, and establishment of alternative schools. Jo Lee has worked extensively with a range of client systems, from nonprofits to military and civilian government organizations.

Together, this team provides the expertise for **VOLVOX, Inc.**, to work in collaboration with customer-partners to create full-field investigations and solutions in dynamic social systems, new forms of vertical and horizontal leadership, and adaptive

governance structures. With a wide organizational perspective, **VOLVOX, Inc.** is able to provide insights into commonalities, distinctions, and emergent dynamics of complex systems as natural and potentially fruitful for organizations and the people within them.





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Agent-Based Modeling (T. Frantz, 1:30PM – 5:30 PM).

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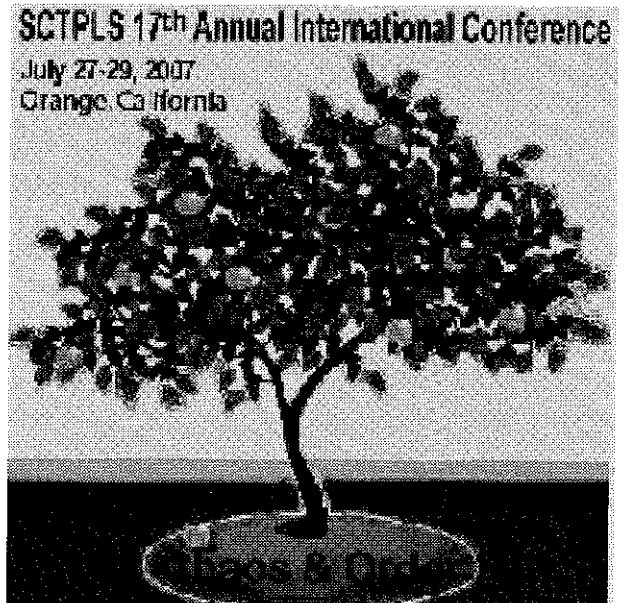
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Guests may park in designated parking lots either on the campus or in the residence halls at no charge. Please inquire at the lodging desk when you arrive if you need further information.

CANCELLATION POLICY

Cancellations of conference registration and lodging will be subject to service charges after these dates: 25% after 1 July, 50% after 15 July, and 75% after 21 July. We regret that we cannot refund cancellation requests received after 24 July.



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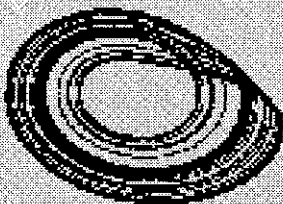
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BOOKSHELF

The Bookshelf is composed from items that people sent to us, or that we can scarf from highly visible places. If you know of a new book on some aspects of nonlinear dynamics, please don't hesitate to let us know.



Bratteli, O., & Jorgensen, P. (2002). *Wavelets Through a Looking Glass*. Birkhäuser. ISBN 0-8176-4280-3. It has quite a lot on chaos and the identification of transient chaotic episodes in time series, handled a bit differently from the more familiar indices. It says it is friendly, but in my view it demands a strong background in harmonic analysis. What I found unusual was the coverage of Perron-Frobenius theory, which I have used a very little in my 2006 book, and the parallels, with that approach on square matrices, to wavelets. I think some of us know that you can do wavelet analyses with the later versions of the package SANTIS. – RAMG

Capra, F., Sotolongo, P., van Uden, J. (Eds., 2007). *Reframing Complexity: Perspectives from the North and South*. Norwood, MA: ISCE Publishing. EDITORIAL - Reframing Complexity: Perspectives from the North and South - Alicia Juarrero, Pedro Sotolongo, Jacco van Uden & Fritjof Capra

Section 1 - Sources of Complexity: Science and Information: 1. Complexity and Life - Fritjof Capra; 2. Ecology, a Dialog between the Quick and the Dead - Robert E. Ulanowicz; 3. Complexity and Environmental Education - Carlos J. Delgado Díaz; 4. Key Issues Regarding the Origin, Nature, and Evolution of Complexity in Nature: Information as a Central Concept to Understand Biological Organization - Alvaro Moreno & Kepa Ruiz-Mirazo.

Section 2 - Philosophical, Epistemological, and Methodological Implications: 5. Why We Cannot Know Complex Things Completely - Paul Cilliers; 6. From Paradigms to Figures of Thought - Denise Najmanovich; 7. Complex Dynamical Systems and the Problem of Identity - Alicia Juarrero; 8. Complexity, Society, and Everyday Life - Pedro Sotolongo

Section 3 - Organizational Implications: 9. Emergence Happens! Misguided Paradigms Regarding Organizational Change and the Role of Complexity and Patterns in the Change Landscape - James Falconer; 10. Modeling of Social Organizations: Necessity and Possibility - Raimundo J. Franco Parellada; 11. The New Complex Perspective in Economic Analysis and Business Management - Ruth Mateos de Cabo, Elena Olmedo Fernández, & Juan Manuel Valderas Jaramillo; 12. Complexity,

Ideology, and Governance - Roger Strand; 13. Globalization and the Complexity of Human Dignity - Ken Cole; 14. The Convolutions of Uncertainty: Time, Change, and Complexity - Carl A. Rubino;

Further background: Havana's Instituto de Filosofía's First Biennial International Seminar on the Philosophical, Epistemological and Methodological Implications of Complexity Theory, was held in January 2002 in Havana, Cuba's capital city. The seminar was aimed at familiarizing Cuban researchers and professors in a more direct way with some of the current trends - and wide-spread scope - of the expanding field of complexity thinking, affording them the possibility of personal contacts with some of the people engaged in that effort. The seminar was attended by specialists from fifteen countries, ranging from Chile to Australia along the West-East axis, and from Norway to South Africa along the North-South one. There were participants from developed and underdeveloped countries.

Gilmore, R., & Latellier, C. (2006). *The symmetry of chaos*. New York: Oxford Univ Press. ISBN 0-1953-1065-9. Covers a lot of familiar ground, well illustrated, 'chaos is about predictability in even the most unstable systems, and symmetry is a pattern of predictability'. The book emphasizes the interplay between chaos and symmetry. – RAMG

Ivancevic, V.G. Ivancevic, T.T. (2006). *High-dimensional chaotic and attractor systems*. Berlin: Springer. ISBN: 9781402054556. Description: This is a graduate-level monographic textbook devoted to understanding, prediction and control of high-dimensional chaotic and attractor systems of real life. The objective of the book is to provide the serious reader with a serious scientific tool that will enable the actual performance of competitive research in high-dimensional chaotic and attractor dynamics. The book has nine Chapters. The first Chapter gives a textbook-like introduction into the low-dimensional attractors and chaos. This Chapter has an inspirational character, similar to other books on nonlinear dynamics and deterministic chaos. The second Chapter deals with Smale's topological transformations of stretching, squeezing and folding

(of the system's phase-space), developed for the purpose of chaos theory. The third Chapter is devoted to Poincaré's 3-body problem and basic techniques of chaos control, mostly of Ott-Grebogi-Yorke type. The fourth Chapter is a review of both Landau's and topological phase transition theory, as well as Haken's synergetics. The fifth Chapter deals with phase synchronization in high-dimensional chaotic systems. The sixth chapter presents high-tech Josephson junctions, the basic components for the future quantum computers. The seventh Chapter deals with fractals and fractional Hamiltonian dynamics. The 8th Chapter gives a review of modern techniques for dealing with turbulence, ranging from the parameter-space of the Lorenz attractor to the Lie symmetries. The last, 9th, Chapter attempts to give a brief on the cutting edge techniques of the high-dimensional nonlinear dynamics (including geometries, gauges and solitons, culminating into the chaos field theory).

Magnetskii, N. A., & Sidorov, S. V. (2006). *New Methods of Chaotic Dynamics*. Singapore: World Scientific. Volume 58 in the WS Series on Nonlinear Science. ISBN 981-256-817-4. As this book indicates some need for revision in the analysis of nonlinear processes, I think it should be reviewed in some SCTPLS location.

Neufeld, R. W. J. (Ed., 2007). *Advances in clinical cognitive science: Formal modeling of processes and symptoms*. Washington, DC: American Psychological Association. ISBN: 1-59147-784-0. **Contents:** Introduction, *Richard W. J. Neufeld*, 1. Using Multinomial Processing Tree Models to Measure Cognitive Deficits in Patients with Schizophrenia and Other Disorders, *William H. Batchelder & David M. Riefer*; 2. A Model-Based Storage/Retrieval Analysis of Developmental Dyslexia, *Richard A. Chechile*; 3. Cognitive Models for Evaluating Basic Decision Processes in Clinical Populations, *Eldad Yechiam, Elizabeth S. Veinott, Jerome R. Busemeyer & Julie C. Stout*; 4. Modeling Visual Attention and Category Learning in Amnesiacs, Striatal-Damaged Patients, and Normal Aging, *W. Todd Maddox & J. Vincent Filoteo*; 5. Clinical-Cognitive Science: Applying Quantitative Models of Cognitive Processing to Examine Cognitive Aspects of Psychopathology, *Teresa A. Treat, Richard M. McFall, Richard J. Viken, John K. Krushke, Robert M. Nosofsky, & Shirley S. Wang*; 6. A Mathematical Process Account of Group and Individual Differences in Memory-Search Facilitative Stimulus Encoding, with Application to Schizophrenia, *Richard W. J. Neufeld, David Vollick, Jeffrey*

R. Carter, Kristine Boksman, Lawrence Levy, Leonard George & Jennifer Jetté; 7. Quantitative Response - Time Technology for Measuring Cognitive-Processing Capacity in Clinical Studies, *Richard W. J. Neufeld, James T. Townsend & Jennifer Jetté*; 8. Using a Speech Perception Neural Network Simulation to Study Normal Neurodevelopment and Auditory Hallucinations in Schizophrenia, *Ralph E. Hoffman & Thomas H. McGlashan*; 9. Complex Dynamics in Mood Disorder, *Rachel A. Heath, Elaine M. Heiby, & Ian S. Pagano*

Piers, C., Muller, J. P., & Brent, J. (Eds., 2007). *Self-organizing complexity in psychological systems*. Lanham, MD: Rowman & Littlefield. This volume addresses itself to the ways in which the so-called "new sciences of complexity" can deepen and broaden neurobiological and psychological theories of mind. Complexity theory has gained increasing attention over the past 20 years across diverse areas of inquiry, including mathematics, physics, economics, biology, and the social sciences. Complexity theory concerns itself with how nonlinear dynamical systems evolve and change over time and draws on research arising from chaos theory, self-organization, artificial intelligence and cellular automata, to name a few. This emerging discipline shows many points of convergence with psychological theory and practice, emphasizing that history is irreversible and discontinuous, that small early interventions can have large and unexpected later effects, that each life trajectory is unique yet patterned, that measurement error is not random and cannot be justifiably distributed equally across experimental conditions, that a system's collective and coordinated organization is emergent and often arises from simple components in interaction, and that change is more likely to emerge under conditions of optimal turbulence. List of Contributors: Stanley R. Palombo; Walter J. Freeman; Jim Grigsby; Elizabeth Osuch; Craig Piers; Jeffrey Goldstein; E. Virginia Demos; John Muller

Smith, D., & Elliott, D. (Eds.). (2007). *Key Readings in Crisis Management: Systems and Structures for Prevention and Recovery*. Oxford, Routledge. One of the first books of its kind in the subject area, this ground-breaking text brings together seminal papers in the area of crisis management and organizational theory. Covering this important field from both a theoretical and practical perspective, it features key readings from Karl Weick, Charles Perrow and many other luminaries of the field. The book is divided into four main sections: Understanding Crisis Management, Modeling the Crisis Management Process,

The Crisis of Management: Cultural and Psychological Dynamics of Risk and Crisis Management, Crisis Management in Practice. Comprehensive and thought provoking, the collected readings review the approaches and limitations of crisis management processes and their cultural and psychological dynamics. Featuring expert editorial commentary on all the key readings, this is an essential and illuminating text that crosses disciplines and covers the diversity within crisis management. As such, it is an invaluable introduction for students – Publisher "Chaos, crisis, risk. These words are on the minds of all who manage complex organizations. This volume brings together significant work in this area and deserves to be read widely." Kenneth Calman, Vice-Chancellor and Warden, University of Durham.



Fractals this issue by J. C. Sprott!

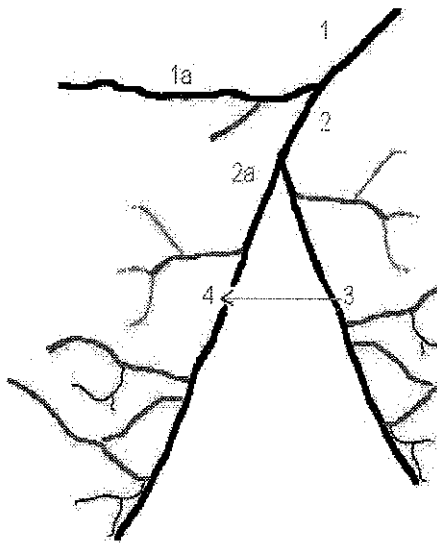


Fig. 1. Decision tree with branching structure. A decision maker who arrives at Point 3 will have a difficult time accessing the option that would have been available at Point 4.

systems, e.g. factory production or fire-fighting operations (Brehmer, 2005). They might also be designed with simpler and more circumscribed contexts in mind; for instance a participant might play the role of a whale that is trying to eat plankton, avoid being hunted by kayaks, and induce the kayaks to crash into icebergs (Jobidon et al., 2005). Some real-world tasks such as firefighting or hospital emergency care involve planning and action on two or more time scales

The computer game medium lends itself to work with human subjects who have no prior knowledge of how the game works or strategies that could be involved. The game rules are said to be *opaque*, meaning that the participant must figure out the rules by playing the game. Real-world tasks can be opaque as well: The decision-maker might or might not have access to relevant information when it could be useful

The notion of time-phased decisions suggests that nonlinear dynamics could provide useful constructs and methods for describing and predicting outcomes in dynamic decisions. According to reports, intelligence measures are poorly correlated with simulator performance. Unreliability of the performance measure has been cited as one possible explanation (Elg, 2005; Brehmer, 2005). Interaction with goals may be another: Performance and a measure of *g* show a substantial relationship for high-demand goals, but not for low-demand goals (Elg, 2005). I would suggest here that the apparent unreliability of simulator performance measures could be related to the time-phased nature of the task. As with other forms of individual and group learning, chaotic behavior occurs before self-organization and stabilization at the levels of neural networks, individual behavior, and group work performance (Guastello, Bock, Caldwell, & Bond, 2005). The change in the qualitative nature of the learning system suggests further that the numerical indicators that are generated under a regime of instability or chaos are qualitatively different from those generated from a regime of self-organized stability.

Nonlinear constructs, particularly evolutionary game theory, could be useful for examining what happens from one decision to another within a sequence. It is fairly well known that the outcomes (evolutionarily stable states) of a sequence of game decisions will be closely related to the utilities associated with a single decision, so long as the decision sequence is *subgame perfect* (Samuelson, 1997). A game sequence is subgame perfect if the options and utilities remain the same for all decisions in the set; this condition cannot

be assumed in many real-world decisions, particularly the dynamic decisions under consideration here. Rather, the structure of a sequence of decisions could well be represented by a branching structure such as the one shown in Fig. 1 (from Guastello, 2002, p. 97). The fractal-appearing decision tree indicates that once some options have been selected, another set of options opens up, and the options might be very different from the options one might face had a different decision been made on a previous step. Thus the notion of sensitivity to initial conditions would apply here. As a result, performance in a set of dynamic decisions could be expected to fluctuate over time. While a good end result is probably the goal of importance in most cases, nonlinear techniques for studying patterns could be useful for understanding how desirable end results could be reached, and how performance could be derailed at different junctures in the sequence. These and other temporal dynamics have not yet been considered in the research on dynamic decisions, but it is probably just a matter of time before that happens.

References

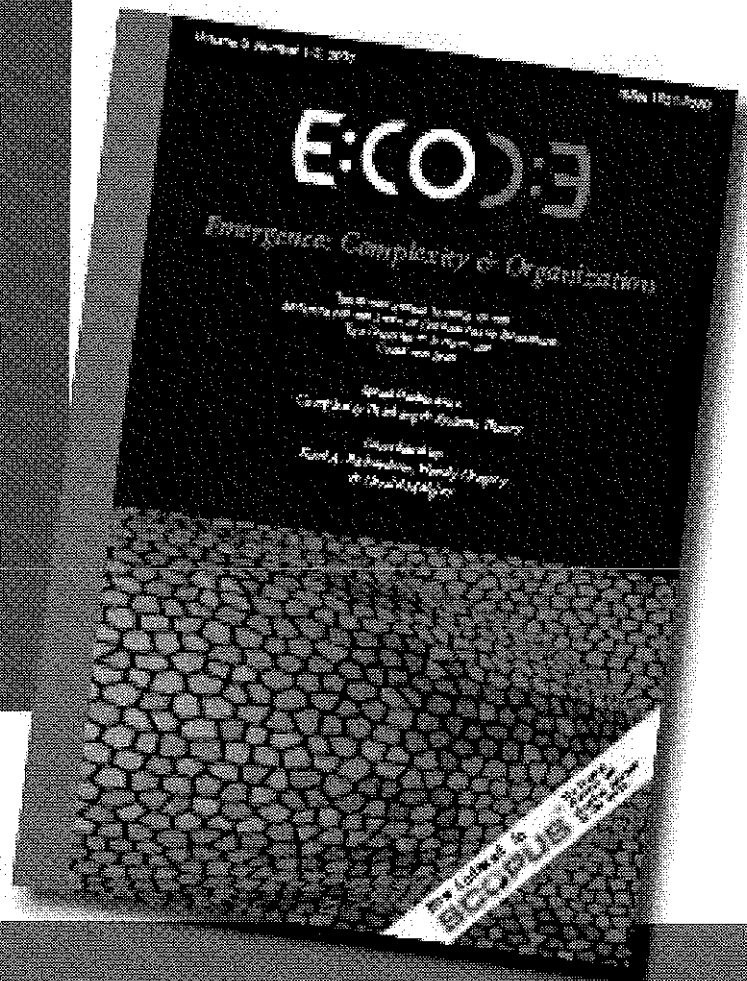
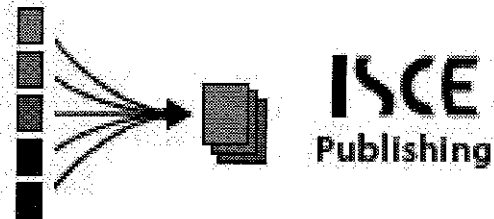
- Brehmer, B. (1987). Development of mental models for decision in technological systems. In J. Rasmussen, K. Duncan, & J. Leplat (Eds.), *New technology and human error* (pp. 111-120). New York: Wiley.
- Brehmer, B. (2005). Micro-worlds and the circular relation between people and their environment. *Theoretical Issues in Ergonomic Science*, 6, 73-94.
- Elg, F. (2005). Leveraging intelligence for high performance in complex dynamic systems requires balanced goals. *Theoretical Issues in Ergonomic Science*, 6, 63-72.
- Guastello, S. J. (2002). *Managing emergent phenomena: Nonlinear dynamics in work organizations*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Guastello, S. J., Bock, B. R., Caldwell, P., & Bond, R. W. Jr. (2005). Origins of group coordination: Nonlinear dynamics and the role of verbalization. *Nonlinear Dynamics, Psychology, and Life Sciences*, 9, 297-333.
- Jobidon, M.-E., Rousseau, R., & Breton, R. (2005). The effect of variability in temporal information on the control of a dynamic task. *Theoretical Issues in Ergonomic Science*, 6, 49-62.
- Rollo, G., & Diaz-Cabrera, D. (2005). Decision-making processes evaluation using two methodologies: Field and simulation techniques. *Theoretical Issues in Ergonomic Science*, 6, 35-48.
- Samuelson, L. (1997). *Evolutionary games and equilibrium selection*. Cambridge, MA: MIT Press.

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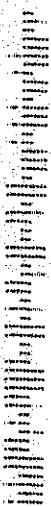
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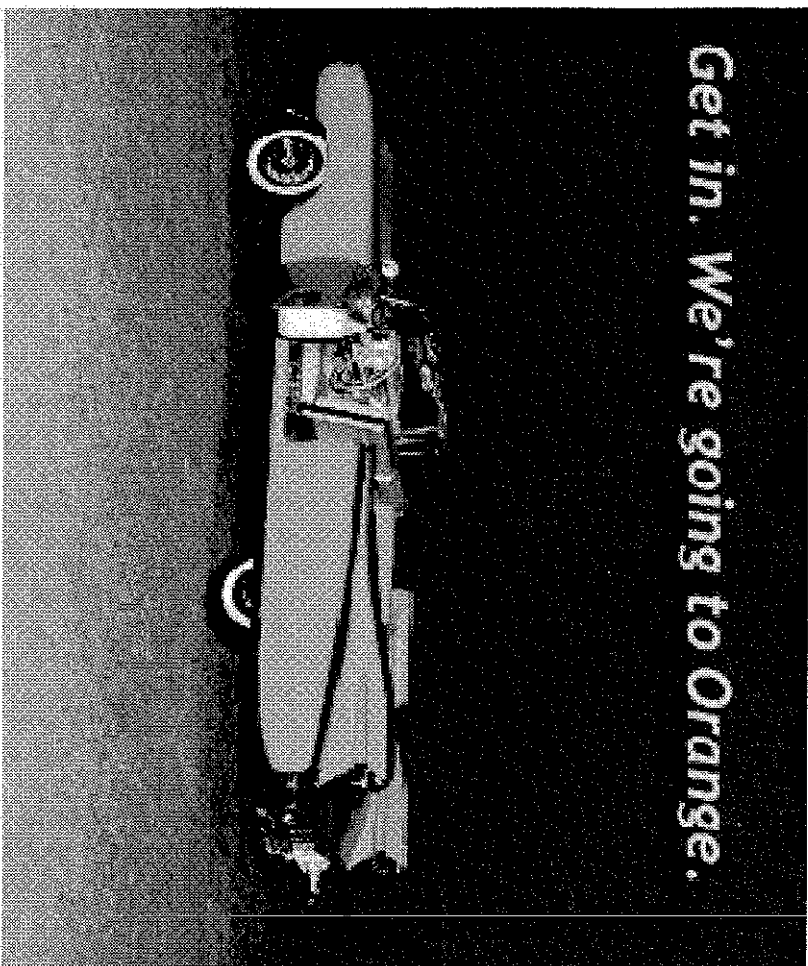
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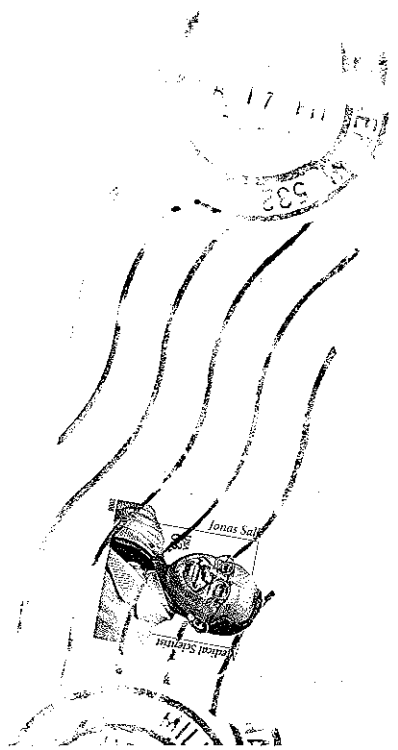
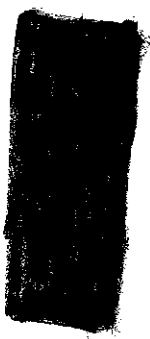
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