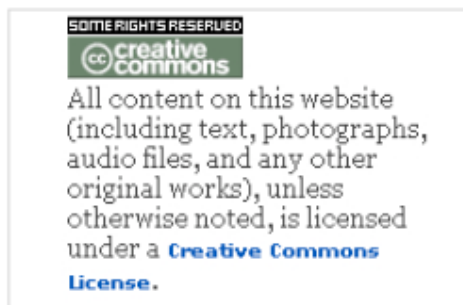


Systemic Complexity for human development in the 21st century
Systemic Complexity : new prospects to complex system theory
7th Congress of the UES **Systems Science European Union** Lisbon, Dec. 17-19, 2008



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Why Systemic Complexity

Opening Address

Hermínio Duarte-Ramos

Emeritus Professor, Faculty of Sciences and Technology, New University of Lisbon
Congress President

It gives me great pleasure to welcome you to the 7th Congress of the European Systems Union/Union Européenne de Systématique/União Europeia de Sistémica, and to wish you a pleasant and useful stay in Lisbon. We are glad that you decided to join us, and hope the debates and presentations will make this a deeply rewarding moment for all. Please feel free to attend the sessions that best meet your interests and to join in the discussions, sharing your comments, impressions, and theories with us, and making this a truly complex congress.

While we're on the subject of sharing, I would like to share with you my impressions of what it's like to organize an international scientific congress, today. It is a complex task, indeed, yet a manageable one, its complexity arising out of the problems that emerge and demand our immediate attention; its manageability being in direct ratio to our experience in dealing with the uncertainties of life.

As you certainly noticed, I have just introduced you to the meaning of systemic complexity, the subject behind the realization of this congress on "Systemic Complexity for Human Development in the Twenty-First Century".

In Portugal, we have been working on the topic since 1982, when the New University of Lisbon tried to implement the so-called systemic engineering – and I use the word "tried" because the concept did not find a propitious environment in which to build strong roots. We did manage, however, to establish the basic structures for teaching and researching on control theories and practices, which enabled us to delve into the issues of cognitive control and decision systems. And our group developed a systemic theory for general systems design, prompting me to recklessly plummet into the deep ocean of systemic complexity.

In the year 2006, I was fortunate to make the acquaintance of Doctor Teresa Ambrósio. She was working on education and systemics in this Faculty, and in contact with the European Systems Union. After her sad, untimely death, I carried on her work committing myself to the task of organizing the 7th Congress of the UES in Lisbon – a decision I have not regretted.

For it has been a pleasure to interact with so many distinguished professionals from so many different countries who are working on the subject I dearly love. I thank

you all for your contributions and for the opportunity to be a part of your lives during these few days.

At this point, a few words come to mind on how we can benefit the most from this event, and one or two questions such as, Why are we attending a congress on systemic complexity? What can we offer the world with our lectures, papers, workshops, and debates? Do we have anything to offer besides words? How can our words be relevant to the world, today and in the future?

It is a fact that globalization has made systems increasingly complex, challenging us to adopt new attitudes such as courage to speak rationally about systemic complexity, and new modes of thought such as those that see everything as part of a whole. Ultimately, globalization dares us to make this a better world for humankind.

And since we understand the world through observation and interpretation, and as both observation and interpretation depend on the use of language, human communication seems to rely on sentences – which are built up of words – which, thus, become the components both of sentences, and of systemic thought. This is why new complex realities demand new words for new concepts. One such new concept/word is systemics. Another is complexity. Together, they make up the concept of systemic complexity, which enables us to understand the things that emerge unexpectedly in our environment. And this understanding is a form of social power, because that which is clear can be mastered through human intelligence.

In speech communication, words carry meanings from one person to another, for they inform, inquire, appeal, or offer knowledge. Speech emerges, therefore, as a complex system – to those who do not apprehend the full spectrum of intentions behind the speaker's words. Each proposition is made up of different types of acts. Locutionary acts express our ways of interpreting reality. As such, they are an important part of a congress. But it appears to me that perlocutionary speech acts – those that are intent on bringing about certain effects – are no less important, for they encourage and stimulate others to comment on our research and on our current mindset. Whenever we present a paper, we engage in a communicative act with the audience, and their opinion, their participation in the debate, becomes a vital part of each paper. Hence, I appeal to you to think of your papers as powerful perlocutions and of yourselves as thought-provoking interlocutors.

Now, complexity is a strong motivation to rethink systemics. And the way technological society is evolving endorses illocution – the use, or not, of words in

order to influence those who hear and read our speeches in specific ways. Illocution is, thus, the practice of criticism to solve urgent problems like, How can we prevent the clash of civilizations that threatens humanity in the twenty-first century? How can we avoid a worldwide financial crisis? Are these global complex systems manageable? But if we are to master such complex systems, we need powerful new theories about unexpected emergences. This congress hopes to be a step in that direction.

The overall nature of an international congress as this one is a combination of the perennial features of its structure and some particularities added by its host. Unfortunately, times are not too favourable, and strong winds blow against our efforts. In fact, they blow against all of us. But we can survive. We can survive because our rational habits are part of the mysteries of complex systems, and because we enjoy discovering their peculiarities as we look for new forms of thinking to help us overcome the crisis threatening our common destiny. That is my hope.

This congress features three lectures and two workshops. The bulk of the program is devoted to theme sessions, where the participants have around 20 minutes to present their papers, followed by a 10 minute discussion. The congress is a kind of interdisciplinarity within systemics, with a total of 36 papers on several themes: new prospects for complex system theory, science and human knowledge, science and development of society, integrating technology in the world, and systemics and globalization.

In preparing the congress, I had the privilege to contact, generally by email, many distinguished researchers and thinkers, which I would like to thank. I begin by thanking professor Gianfranco Minati, vice-chair of the UES in Italy, for his valuable advice and for graciously accepting to read a lecture. I extend my appreciation to the President of the Association Française de Science des Systèmes (AFSCET), professor Emmanuel Nunnez, to whom I wish good health so that he may come and live with us. I thank the AFSCET's General Secretary, professor Gérard Donnadiou, for helping set up the framework of the congress, and for his plenary session speech. My gratitude also to Jacques Lorigny for organizing the workshop on "Human Autonomy and Systemics", and to François Dubois for the workshop on "Quantum Mechanics and System Science".

I extend my congratulations to all members of Committes, Apocosis, Atelier 34 and its president Idália Sá-Chaves, for helping to organize the congress, especially doctor Fernando Coito and the Decision and Control Group of the Electrical

Engineering Department. A special thank you to our sponsors, the Association Française de Science des Systèmes (AFSCET), the National Energy Networks / Redes Energéticas Nacionais (REN), the Sciences and Engineering Faculty of the New University of Lisbon (FCT-UNL), and the Rectory of the Universidade Nova de Lisboa. My deepest thanks to professor Fernando Santana, Dean of the Faculdade de Ciências e Tecnologia, who generously granted us the facilities for this Congress.

Last but not least, I thank all of you for being here for the 7th Congress of the European Systems Union/Union Européenne de Systémique/União Europeia de Sistémica. May you have a productive work and a lovely stay in Lisbon. Thank you very much, danke sehr, grazie tante, muchas gracias, muito obrigado.

Let us begin, joyfully!