



Foto: Sokoloff

PROFESSOR GERARD de ZEEUW

## SUPPORT SYSTEMS AND QUALITY OF LIFE

Stephen Sokoloff (based on an interview of Gerard de Zeeuw)

Another example of a supporting systems is a library. This institution can be used in many different ways. A manual describing further possibilities for its employment could be regarded as a supporting system for a supporting system. The main reason for devising additional systems of this type is to increase quality — e.g. to enable greater variety in the activities of the users. These systems can possibly also serve to increase the generality within the user group.

The previous examples were rather trivial. Prof. de Zeeuw is trying to determine how support systems which are of greater societal relevance can be used to improve the quality of human interactions. People are supported, for example, while they are dying, but many of the procedures currently being employed isolate them and reduce the diversity in their environment. How can this be avoided? It is necessary to coordinate the work of social and medical institutions in ways that allow patients to maintain individuality, variety and profile. First one must identify the institutions and the functions they are performing. Then the concepts they are employing have to be connected in a learning process.

Abstraction has all too often been associated with regulation and restriction. Multidimensional man has to conform to the needs of production techniques and computers and to rigid institutional patterns.

It is hoped that studies such as those of Prof. de Zeeuw, which take abstract concepts as their point of departure, can serve to enhance the richness of human existence.

**Systems to enhance the quality of human existence - that is a primary goal of Prof. de Zeeuw. In the following article we will find out how he goes about designing them.**

To explain what is meant by a „support system“ we will first consider a few concrete examples. Let us take a look at the warnings posted in European trains. The German version is the command: „Don't lean out!“. The person who had it posted assumed that, since he was the authority, the traveller would have to act in accord with his instructions. The Italian version is different; it merely provides the information that „It is dangerous to lean out“. The traveller is then left at least theoretically free to act at his own discretion. In these cases the warnings constitute the support systems, supporting the use of the trains. They differ in terms of the variety left to the users.

## A NEW ORGANIZATION:

### The German Society for System Research

We are pleased to announce the addition of a new organization to the systems community — the German Society for System Research (Deutsche Gesellschaft für Systemforschung E.V.). The meeting at which the society was established took place in Stuttgart on 16. January 1988. The chairman is Dr. Klaus Kornwachs, Prof. Dieter Gernert and Wolfgang Hinderer are the vice-chairmen. The organization has applied for affiliate membership in the IFSR.

#### Contact address:

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# SUPPORT, SURVIVAL AND CULTURE

## Report on a research programme at the University of Amsterdam, the Netherlands

RANULPH GLANVILLE

The Dutch Ministry of Education has awarded a team led by Prof. Gerard de Zeeuw at the University of Amsterdam a major research contract, scheduled to run for up to eight years. The programme has been going on for more than a year now.

The aim of the programme is to study support systems which are designed to increase individual and collective competence. Special attention is devoted to the users and the ways in which they influence the design, development, maintenance and change of such systems. Ultimately a set of descriptive and predictive (user) languages should evolve, themselves support systems that will support the improvement of support systems.

These are different from expert systems, though both types belong to the class of systems which provide support. The quality of an expert system can be evaluated in terms of the knowledge that it embodies, but this is not the case for a support system. Its quality can only be appraised by determining whether it continues to find new users, is maintained by its use and shows increasing robustness (invariance under a variety of circumstances).

### The Concept of Problem

In the design of support systems a central role devolves onto the concept of „problem“, taken in a special sense. This term is used to designate situations in which actors experience obstacles to their intended activities, e.g. when the necessary resources become unavailable or when it would require a considerable effort to acquire them. By solving such problems actors realize an improvement in their competence to avoid or solve them in the future. Solutions may involve new ways of organizing activities, the recognition of unused resources or the replacement of interfaces (e.g. changes in the design of a keyboard). Actors may be particular persons, but they can also be points of view or systems of belief entertained by a person, a society or a subculture within a society. These actors are assumed to be capable of action (including linguistic action), and therefore also of interaction.

„Problem“ as used here has a broader connotation than it usually does. It includes, for example, the activities often described as „problem formulation“ as well as those that deal with the solution of problems. The coordination of both of these kinds of activities is also encompassed by this term. It also includes the accumulation of knowledge, both by the participants and by whoever else intervenes in order to improve formulation or solution capabilities. Finally it covers the organization of actors for the purpose of making knowledge readily available to them.

This definition underlines an essential epistemological feature of our programme. The researcher is a participant actor, oriented towards intervention, but also involved in the designing of support systems; these represent his or her contributions as a researcher. Thus knowledge is here defined as that which improves the competence of one or more of the actors immediately involved in a situation, but also as that which improves the competence of an intervening scientific community or of the whole of society, which can also be regarded as a community. Knowledge in this sense will be of use in both strongly and weakly

structured problem situations. It is tied to the significance which an actor comes to have in society.

The design of support systems can take many different forms. One is the description of the processes employed in solving problems of the kind being dealt with. As researchers in cybernetics and systems theory are well aware, such descriptions can lead to change, since they are at the same time a conceptualization and a form of action. Another type of support system design is the actual physical implementation of processes that change the interaction between an actor and selected parts of his environment.

### User Languages

User languages must ensure (a) that all actors participate to a proper extent in the interaction concerning a problem situation, (b) that a proper balance between the degree and the variety of interaction is maintained (or promoted), (c) that their use promotes the individual and collective competence of the participating actors, (d) that they bring about the elimination of factors which lead other – possibly non-participating – actors to oppose their effective use.

User languages usually will be tested and presented in the form of computer programs, but they may also be sets of concepts whose use can be taught. User languages can be regarded as theories about the nature and design of support systems. They can be formally represented in terms of so-called d- languages. A d- language is like a natural language, but it is characterized by its ability to facilitate the interaction of a duality or plurality of roles or levels in order to mobilize knowledge and create information geared to solving problems.

Since user languages are intended to support the improved use of any system, or at least of as wide a variety of systems as possible, they will be developed and tested in the programme in a variety of contexts. Our research is concerned with the development of computer support action worlds (worlds in which simple activities such as business and war games can be undertaken) and the design of userlanguages in areas such as education and social aid.

To make this possible, the programme has brought together specialists from a variety of different fields including social scientists, computer designers and systems researchers. In addition to the team leaders, specialist lectures, visiting consultants and artists, guest professors and support staff there are full time research assistants and doctoral students.

Further generalization will be brought about by appropriate scientific networking. This may be realized on an individual basis but the participation in and the organization of international conferences is also being planned. **The next meeting** will be held in **Amsterdam** from March 27th until April 1st 1989, in cooperation with the American Society of Cybernetics. Its central theme will be „**Degradation and Celebrations: the mutual (ab)use and promise of Cybernetics and Science**“.

Further information and the contact address are to be found in the list of meetings.



Foto : Sokoloff

PROFESSOR JOHN P. van GIGCH

## ISGSR MEETING, ST. LOUIS, MO., MAY 23. – 27TH, 1988

John P. van Gigch  
(California State University, Sacramento, Ca, 95819, USA)

The Annual Meeting of the int. Society for General Systems Research was held in St. Louis, Mo., USA, May 23. – 27th 1988. In the morning sessions Drs. Russell Ackoff (outgoing president), J.J. Miller, A. Rapoport and Peter Allen (representing incoming president Ilya Prigogine) gave major addresses. The afternoons were reserved for paper presentations.

One of the highlights of the meetings was the attendance of the most celebrated members of the systems community such as those already mentioned above, plus Drs. C.W. Churchman, K. Boulding, P.B. Checkland and B. Banathy. By lending their expertise and their reputations, they were instrumental in assuring the success of the meeting.

Dr. Russell Ackoff imposed his imprint on the meeting's program by emphasizing papers and presentations which covered the implementation of system solutions in the field of contemporary management. One session was devoted to the systemic redesign of corporations, the government and its agencies, and communities as well as to the applications of systems in welfare, business and industry. The problems of international security, the advancement of peace, planning and the role of law, society and science and education also received ample treatment by the participants.

### Why war cannot be easily eradicated

The von Bertalanffy Annual Lecture was delivered by Anatol Rapoport, who discussed the role of General System Theory in society. He praised GST for the role it can play in integrating the various fragmented solutions that politicians and governments alike propose to eliminate our social evils. He explained that survival resides in the adaptation of institutions to changes in the environment. Extinction occurs when institutions cannot adapt. He called „war“ an institution which owes its existence to continuous and pervasive adaptations,...„War is the product of creative science research devoid of any ethics“...The institution of war resembles a cancer. It is a malignant growth that „masquerades“ as a legitimate process among other processes of the technological and governmental establishment. Rapoport showed the

absurdity of the types of reasoning which are used to justify or excuse the existence of the war machine and of the war mentality. He asked whether there is cure for this sickness. Without committing himself to a positive or negative answer, Rapoport asked that we remain optimistic, but be aware of the fact that deterrence is a superstition and a myth rather than an effective shield which might, some day, prevent war.

### Student Paper awards

Another important highlight of the meeting was the presentation of the winners of the Sir Geoffrey Vickers Student Paper Contest. John Minker won the second place award with his paper „Troubled Ways and Tainted Waters: System Failure in the Management of Hazardous Wastes“. Two papers were declared „best papers“ : Elias L. Khalil with „Natural Systems and Natural Complex“ and Bela A. Banathy (the son of the well known Bela Banathy) for his paper on „A Solution to the Problem of Closure in Information Systems“. As usual, the student papers were of superlative quality and showed that the systems movement is staying alive by recruiting very smart new adepts.

The business side of the Society was dealt with in meetings of the Council and the Board. An open business meeting was also held. the closing banquet was presided over by Dr. R.L. Ackoff; all past-presidents in attendance were seated at the head table along with Dr. C.W. Churchman, who is the president-elect.

During the business meeting, it was announced that the U.S. business office of the Society was moving from the University of Louisville to the University of Southern California (Institute of Safety and Systems Management, USC, Los Angeles CA., 90021). Next year's meeting (1989) will be held in Oxford, England, during the first week of July. The English contingent, which was very numerous at the 1988 meeting in St. Louis, extended a warm invitation to the rest of us to visit England next year and participate in the 1989 Annual Meeting of the Society.

## NEW PUBLICATIONS

### A new international journal from Plenum! **Systems Practice**

#### Using systems science to tackle complex problems

Systems Practice, a peer – reviewed, quarterly journal commencing publication in 1988, will promote the development of systems thinking and the use of systems methods to improve decision – making and problem management. The primary purpose of the journal is to present practical recommendations that will facilitate the management of complex problems arising in business and industry. Articles will take a practical approach to the management of intricate situations. Emphasis will be given to papers that describe innovative methodologies for dealing with complexity and reports of actual cases of intervention using systems design procedures. The journal will be relevant to managers and decision – makers working in commercial, industrial, governmental, and social enterprises in the following areas:

- systems management
- systems engineering
- management consultancy
- information technology
- planning
- computer science
- environmental design and planning
- industrial and organizational psychology
- decision science
- management information systems

In keeping with the applied nature of the journal, most of the articles will focus on problem – solving in the analysis, design, planning, and implementation of systems. However, theoretical articles will be considered if they contribute to the general knowledge of systems and potential applications are indicated. In addition to the articles, each issue of the journal will include an editorial, responses to articles, book reviews, and recent news briefs. The international editorial board, made up of leading experts from academia and industry, will provide a global perspective of this rapidly developing field.

#### Call for papers!

Systems Practice is currently seeking articles in the areas of administration, management, management consultancy, management science, systems engineering and the information and decision sciences. Of special interest to the journal are papers emphasizing novel methods for solving complex problems and papers summarizing real applications of systems analysis and systems design procedures. Potential contributors are assured rapid publication following manuscript acceptance.

For more information, write to:  
**Dr. Robert L. Flood**  
**Department of Systems Science**  
**The City University**  
**London EC 1V 0HB, England**

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## Neural Networks

### Official Journal of the International Neural Networks Society

Neural network research concerns the modelling of brain and behavioral processes and the application of these models to computer and related technologies. This research, which is now understood as an important aspect of the cognitive and neurosciences, is also precipitating a fundamental shift in computer science and artificial intelligence. Scientists and engineers are now using neural network models to help solve key technological problems. There is a great deal of interest in implementing these models in real – time hardware. The first edition of **Neural Networks** appeared in early 1988. The quarterly publication will publish original contributions on brain and behavior modelling and its application to computer technology. It is intended to serve as an interdisciplinary publication of interest to neurobiologists, psychologists, computer scientists, mathematicians, engineers and physicists.

Topics will include:

- vision and image processing
- speech and language understanding

- pattern recognition
- associative learning and long – term memory
- self organization
- cognitive information processing
- cooperative and competitive network dynamics and short – term memory
- sensory – motor control and robotics
- parallel distributed processing
- local circuit and systems analyses of brain – behavior relationships
- combinatorial optimization
- electronic, optical, hybrid and virtual devices and neurocomputers.

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**PROJECT NEWS**

**Interested in Collaboration in Cognitive Experimentation and Neural Networks?**

Project teams in the departments of Computational Science and Psychology of our University are seeking transnational partners for an ESPRIT project on basic research. In particular, we have draft proposals for cognitive experimentation, for using neural networks to implement parallel processes in computer vision, and for training neural networks themselves. Our project teams have an interdisciplinary background, bringing expertise in computer science, cybernetics, psychology, and mathematics.

At the time of writing we have not yet received notification of the official timetable and application details. However, we understand informally that an announcement is due very shortly, that our project budget should be in excess of 1.5 million ecu, and that the deadline for application this year will be sometime in June. We would still be interested in collaboration starting next year if this year 's deadline cannot be met.

If you would be interested in collaboration on topics that can be related to the above, possibly in a broader scheme, please get in touch.

**Dr. M. Weir**

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**MEETINGS and COURSES**

Title	Date 1988	Place	Deadlines	Further Information
Systems Prospects: The next ten years of systems Research (Conference)	13 - 15 July	Hull U.K.	Abstracts 31. March	M.C. Jackson Dept. of Management Systems and Sciences University of Hull HU 6 7 RX, United Kingdom
International Conference on System Science and Engineering (ICSSE '88)	25 - 28 July	Beijing (Peking) People's Republic of China	Abstracts 15 Sept. 1987 Papers: 15. Febr. 1988	Prof. Wei-Min Cheng, Chairman International Programme Committee of ICSSE '88 Department of Automation Tsinghua University Beijing 100084, China
European Conference on Artificial Intelligence	1 - 5 August	Munich F.R. Germany	15 Febr.	Prof. Dr. Bernd Radig Technische Universität München ECAI-88 Institut für Informatik Postfach 20 24 20 D 8000 München 2, F.R. Germany
Working Conference on Office Information Systems The Design Process	15 - 17 August	Linz Austria	15 Febr.	Roland Wagner Johannes Kepler University A 4040 Linz, Austria Papers: Dr. Barbara Pernici Dipartimento di Elettronica Politecnico di Milano Piazza Leonardo da Vinci, 32 I 20133 Milano, Italy
4th International Conference on Systems Research, Informations and Cybernetics	15 - 21 August	Baden Baden F.R. Germany	Full paper 22 May	Prof. George E. Lasker Conference Chairman School of Computer Science University of Windsor Windsor, Ontario N9B3P4 Canada
4th IFAC Symposium Computer Aided Design in Control and Engineering Systems	23 - 25 August	Beijing (Peking) People's Republic China	15 April 1987	Prof. Chen Zhen-Yu Cads '88 Secretariat Application Committee of the Chinese Association of Automation P. O. Box 919 Beijing, PRC

Title	Date 1988	Place	Deadlines	Further Information
IFAC/IFORS Symposium Identification and System Parameter	27 - 31 August	Beijing (Peking) People's Republic of China	15 April 1987	Prof. Chen Han-Fu Institute of Systems Sciences Academia Sinica Beijing 10080, P. R. China
13th Symposium on Operations Research	7 - 9 Sept.	Paderborn F. R. Germany	15 Febr.	SOR-PB Universität - GH Paderborn D 4790 Paderborn, F. R. Germany
Fuchs Regional Conversation in Spain	12-15 September	Murcia, Spain	Position papers end July 1988	Sociedad Espanola de Sistemas Generales (SESSE) Dr. Gómez Ulla, 4-5 <sup>o</sup> D 28028 Madrid Spain Tel. (91) 2565155
3rd International Symposium on System Analysis and Simulation	12 - 16 Sept.	Berlin DDR (East Germany)	Abstracts: 1. Dec. 1987 Papers: 1. May 1988	Mrs. Böttcher Zentralinstitut für Kybernetik und Informationsprozesse Kurstraße 33 1086 Berlin, DDR
Computer Learning in Engineering: Different Perspectives (Workshop)	16 Sept.	Detroit Mi, USA (Wayne State University)	Registration 16 August	Dr. T. Aricizewski Intelligent Computers Center Civil Engineering Department College of Engineering Wayne State University Detroit, Mi, USA Tel. (313) 5,7-3766
33rd Institute for Medical Informatics Conference Topic: Expert Systems and Decision Support in Medicine	26 - 29 Sept.	Hannover F. R. Germany		Ms. U. Piccolo Medical School Hannover Institute for Medical Informatics P. O. B. 61 01 80 D 3000 Hannover 61, F. R. Germany Tel. (0511)-532-2540
3rd International Workshop on Spectral Techniques	4 - 6 Oct.	Dortmund F. R. Germany	2 April	Claudio Moraga Dept. Computer Science University of Dortmund P. O. Box 500500 D 4600 Dortmund 50, F. R. Germany
Sixth Symposium on Empirical Foundations of Information and Soft- ware Science (EFISS)	19 - 21 October	Atlanta GA, USA	Abstracts 15 March Accepted Papers 1. August	Professor Pranas Zunde EFISS Symposium Organizing Committee School of Information and Computer Science Georgia Institute of Technology Atlanta, Georgia 30332 USA
XXVth International Con- ference of the Applied Econometrics Association- International Commodity Market Modelling	27 - 28 October	Washington D. C. USA (World Bank)	Papers and Pre- Registration 21 March	AEA-Commodities J.B. Lesourd ESIPSOI Université de Droit, d'Economie et des Science d'Aix-Marseille Centre de Saint-Jerôme F-13397 Marseille Cedex 13 France Tel. (33) 91983389 ext 45 Telex FACSTJE 402876F
Third International Symposium on Computer and Information Science	29. October 2. November	Cesme Izmir, Turkey	Papers 25. June 1988	ISCIS III E.O. Bilgisayar Arastirma ve Uygulama Merkezi 35100 Bornova Tel.: (90) (51) 181080, 187222 E-Mail: Bileba at Trearn

Title	Date	Place	Deadlines	Further Information
Conference on Support, Society and Culture- mutual uses of Cybernetics and Science	<b>Date 1989</b> 27 March to 1 April 1989	Amsterdam, Netherlands		Ms. Joop Muller Co-ordinator, Programma Ondersteuning, Overleving en Cultuur IWA Grote Bickerstraat 72 Amsterdam 10013 KS, The Netherlands Tel. Amsterdam (20) 525-1250
5th Austrian Artificial Intelligence Conference (in German and English)	28-31 March 1989	Innsbruck Austria	3.10. 1988 Complete Paper (3 Copies)	Österreichische Gesellschaft für Artificial Intelligence ÖG-AI Tagung 1989 Postfach 177 A-1014 Vienna/Austria
IFORS Specialised Conference Operational Research and the Social Sciences	10.-13. April 1989	Cambridge, England U.K.	Abstracts (200 words) 1. September 1988	<b>Abstracts</b> Mike Jackson O.R. and the Social Sciences Conference Dept. of Management Systems and Sciences University of Hull Hull. HUG 7 RX United Kingdom  <b>Further details of conference</b> Ray Showell Secretary and General Manager Operational Research Society Neville House, Waterloo Str. Birmingham, B. 25 TX United Kingdom
Beijing International Conference on System Simulation and Scientific Computing	15 - 18 August 1989	Beijing (Peking) People's Republic of China	Abstract or Paper 15 March 1988	Chinese System Simulation Council Beijing Institute of Aeronautics and Astronautics Beijing, China
I. International Congress on Systems for Development	19 - 22 September 1989	Murcia Spain	Final Papers 28 February 1989	5. International Congress SESGE Escuela Universitaria de Informatica Universidad de Murcia San Cristo 1 E-3001 Murcia Spain Tel. (968) 833190 or 833908 Ext. 190 or 204
6th World Congress on Medical Informatics	16 - 20 October 1989	Beijing (Peking) People's Republic of China	Final papers (Camera ready) 10 January 1989	Ms. Shan Huiquin Medinfo 89 - Secretariat 29 Xueyuan Nanlu Haidian District Beijing, China Tel. 892565, 898516 Cable: 2400
Beijing International Conference on System Simulation and Scientific Computing (BICSC)	23-26 October 1989	Beijing (Peking) China	Abstract or complete draft (two copies) 15. Sept. 1988	Secretariat 1989 BICSC POX. 301 Beijing Institute of Aeronautics and Astronautics (BIAA) Beijing, 10083 China Tel.: 2017251-609 Telex: 22036 BIAAT CN
8th International Congress of Cybernetics and Systems	<b>Date 1990</b> 11 - 14 June 1990	New York NY, USA	Organization of Sections or Symposia September 1989	Prof. Constantin V. Negoita Congress Chairman Dept. of Computer Science Hunter College City University of New York 695 Park Ave New York, N. Y. 10021 USA

**Offenlegung:** Der „IFSR Newsletter“ erscheint alle zwei Monate in englischer Sprache unter der Redaktion von Dr. Stephen Sokoloff. Die Zeitschrift dient der Information über die Aktivitäten der IFSR. Sie wird kostenlos an Mitglieder ihrer insgesamt 16 Mitgliedsorganisationen in 14 Ländern versandt. Die Kosten werden von der IFSR aus den Beiträgen der derzeit 16 Mitgliedsorganisationen getragen.

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