



Report 11

November 3, 2010

On the “Life” in the German Operations Research Society

GOR – a Partner of ORST

Gerhard-Wilhelm Weber (IAM, METU)

Our new issue of ORST-GOR newsletter is devoted to report about one single event: **OR 2010 in Munich, Germany**. As you may remember, this was the annual international conference of the German OR Society. In this newsletter, we shall focus on a particular Stream, this time called: a *Topic*, and named “*OR in Life Sciences and Education - Trends, History and Ethics*”; the report is prepared with the friends *Annette Hohenberger* and *Giorgio Gallo*. In the following ORST-GOR newsletter which will succeed this present one, we shall learn about the impressions from OR 2010 in Munich by our friends *Ismail Serdar Bakal* and *Serhan Duran*.

Please enjoy reading and, perhaps, receiving some views and incentives.

Thank you very much for your kind interest and friendship.

***Report from the International Conference on
OPERATIONS RESEARCH, “MASTERING COMPLEXITY”,
MUNICH, 01-03 September 2010***

***The Topic “OR in Life Sciences and Education -
Trends, History and Ethics” at OR 2010 in Munich –
Supported by the Three EURO Working Groups on Ethics and OR,
Methodology of Complex Societal Problems, and OR for Development***

by

***Annette Hohenberger, METU, Ankara, Turkey
Giorgio Gallo, University of Pisa, Italy
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1 Topic “OR in Life Sciences and Education - Trends, History and Ethics” at OR 2010

Our annual conference *OR 2010* in Munich (<http://or2010.informatik.unibw-muenchen.de/>), organized by the German OR Society (GOR), this time in collaboration with the Italian friends from AIRO (Optimization and Decision Sciences), became a great success. One innovation

consisted in the topic “*OR in Life Sciences and Education - Trends, History and Ethics*”. This topic consisted of the following sessions:

- *Applications on Societal Criminality Analysis and Medical Tumor Investigations,*
- *OR in Complex Societal Problems I,*
- *OR for Development and Developing Countries, and Intelligent Systems in OR,*
- *Applied to Life and Human Sciences,*
- *OR: Responsibility, Sharing and Cooperation,*
- *Applications of Nonsmooth, Conic and Robust Optimization in Life and Human Sciences,*
- *Data Mining and Optimization in Computational Biology, Bioinformatics and Medicine,*
- *OR, Socio-Cultural Issues and Gender,*
- *Advances in OR, Learning and Data Mining Tools in Life Sciences and Education,*
- *Complex Demands on Social Services concerning Problems of Social Complexity,*
- *Supporting Military Decisions in the 21st Century: Theory and Practice,*
- *OR in Complex Societal Problems II, and OR and Ethics,*
- *OR Methods for Satellite Communication,*
- *Semi-Plenary Session: Manfred Mayer.*

We sincerely thank all the Session Organizers and participants, and refer to http://or2010.informatik.unibw-muenchen.de/information/download/documents/Program_OR2010.pdf for more details.

In the following two sections, some impressions of the topic are given by reports about three sessions which were part of this stream.

2 Three Sessions on

“OR in Complex Societal Problems I and II – OR and Ethics”,
organized by Dorien de Tombe

“OR - Responsibility, Sharing and Cooperation”,
organized by Giorgio Gallo

Although, unfortunately, Dorien DeTombe could not attend the conference, her two sessions, “OR in Complex Societal Problems I and II – OR and Ethics”, took place as planned – thanks to her careful alternative planning. Cor van Dijkum chaired the first session and I did the second. At the beginning of the first session, Cor played a short video address that Dorien had prepared, in which she introduced the topic of Complex Societal Problems to the audience. Then we had three presentations, two on Climate Change (its cognitive aspects by Annette Hohenberger, its complex societal aspects by Dorien DeTombe) and one on a complex model of communication between General Practitioner (GP) and patient (Cor van Dijkum and Niek Lam). Dorien’s paper was presented in the format of a video seminar that she had once taught to students at Middle East Technical University (METU). Cor also distributed the Power Point print-outs so that the audience could follow her talk for as long as the remaining time allowed. He also handed out copies of her 2008 Climate Change paper in the Journal of Transformation and Societal Change. The second session was thematically related to the first one. Continuity was provided by the paper of Niek Lam and Cor van Dijkum in which they elaborated on their previously introduced communicational model between GP and patient, now in terms of its statistics and nonlinear differential equations. The paper presented by Willi Weber, on behalf of his collaborators, was dedicated to the study of infrastructure facilities on the quality of primary education, mostly in Turkey, by means of the Cross Impact Analysis (CIA). The last paper by Arnold Dupuy opened up a new thematic field. It gave a model-theoretic and

quantitative account of the Russia-Georgia Conflict 2008, in terms of the Tactical Numerical Deterministic Model (TNDM), with the aim of drawing realistic and unbiased lessons.

Overall, both sessions were highly inspiring and went very well, despite Dorien DeTombe's absence. We would like to thank her for her thoughtful arrangements. Thanks to her foresight the two sessions were a great success. Of course, we missed her inspiring presence and input very much. Next year she will hopefully be able to attend again!

Critically, it should be remarked that in each of the two sessions one paper could not be delivered because the presenters did not come. In both cases the authors came from countries far away, from Peru and from Thailand. This was a great pity. It shows that it is (still) difficult for foreign researchers to attend a conference in Germany or Europe, most probably due to visa or funding problems. I also witnessed similar cases in other sessions. This shows, on the one hand, that the OR conferences are a great magnet for scholars all over the world but also, on the other hand, that more efforts need to be made in order to help scholars from countries outside Europe to actually attend. At the conference itself, it would have been helpful if the organizers had informed the chairs of the sessions before which presenters could not come – as far as the organizing committee has knowledge of these problems, of course. This would have facilitated the re-scheduling of the order and the available time for the remaining speakers.

I would also like to comment on the keynote talk of Giorgio Gallo that he delivered in the plenary on September 03, on "Ethical Implications of Complexity". I was very intrigued by this talk which struck me as very scholarly – because it developed ethical implications from the OR perspective itself – and at the same time very visionary – because it showed with which other scientific fields OR shares commonalities in this respect: with (practical) philosophy, economics, epidemiology, complexity theory (in a broad sense), and political sciences. With this plenary talk Giorgio Gallo pointed out on a large scale that ethical considerations are indispensable for OR but also that OR is indispensable for ethics. After all, "Good OR" is the science and practice of "Doing Good" (Cynthia Barnhart).

Annette Hohenberger, Ankara



*Impressions from the Evening Reception at "Alter Rathausaal"
(first coauthor at the left side)*

3 Session on “OR - Responsibility, Sharing and Cooperation”

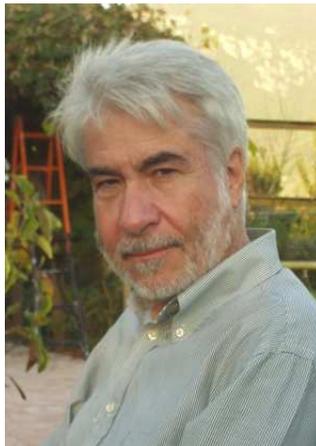
In this session, which I have chaired, we had one no-show and a change in the speaker of another. The result was that the session had 3 presentations, all with Italian speakers.

The first was concerned with a very important problem, the analysis of the phenomenon of inter-culture in schools. A field research on a large sample of pupils from some Italian schools has been performed, based not only on statistical tools, but also on Saaty's Analytical Hierarchical Approach. The survey showed that foreign students, even the ones born in Italy, have lower scholastic success than the Italians. This result highlights the relevance of the socio-cultural capital of the family with respect to the scholastic success of the children. The authors conclude that the Italian school still has to take further steps to give all the students equal chances in education.

The second focused on the use of archetypal mathematical models, called Policy Models, to summarize the knowledge on some politically relevant situation, in order to provide guidance in decision making. These are models which arise from the need to analyze and to discuss archetypal situations or even specific concepts, all with ethical contents and/or policy implications. They can be thought of as a way to bring order to the complex multitude of interactions and processes which characterize real world situations and can be used by policy makers as a base for policy decisions.

Finally in the last, the more technical one, models and algorithms for improving the efficiency of Solid Waste collection have been presented. In this type of problem decisions about the frequency of the service and the number of the bins must be taken. So the joint solution of a routing problem and proper allocation is required. The authors presented new algorithms for this problem, providing numerical results on sample problems.

Giorgio Gallo, Pisa



Keynote Speaker and second coauthor Giorgio Gallo

4 Conclusion

The fact that this new Selected Topic of "OR in Life Sciences and Education – Trends, History and Ethics" was presented at the Munich conference, reflects the rapid changes which the modern world is experiencing – as challenges and as chances. Our OR has responded to these developments by offering a scientific forum to researchers and practitioners that provides and helps refine the necessary methods. The foundation of corresponding EURO Working Groups and of working groups of national OR societies have been milestones on this

way. Those changes are sometimes associated with issues such as global warming, financial crisis, globalization, and swine flu. Furthermore, there are the UN Millennium Development Goals, especially, the goal to fight poverty. Our new Selected Topic invites colleagues from all disciplinary backgrounds to meet, to present and further discuss how modern, interdisciplinary OR with its quantitative methods may contribute to urgent problems of our societies, of nature and the environment. Special emphasis is given to the "human factor", the "social factor", to the improvement of living conditions and to ethics.

Gerhard-Wilhelm Weber, Ankara

Some related links:

EURO WG MSC - Methodology of Complex Societal Problems:

<http://www.complexitycourse.org/EuroMSC.html>,

EURO WG on Ethics and OR: http://www.euro-online.org/display.php?file=wg_info.php&wgid=24&title=EURO-WS-Working-WS-Group-WS-on-WS-Ethics-WS-and-WS-OR&parent=303,

EURO WG on OR for Development: <http://www2.ing.puc.cl/~fcrespo/eurofdv/>,

All EURO Working Groups: <http://www.euro-online.org/display.php?pageid=303&>.

With best wishes and cordial regards,

I remain, yours sincerely,

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