



Opinion Makers Section

(This section is prepared by J. Clímaco)

THE MANAGEMENT OF THE FUTURE ETHICS IN OPERATIONAL RESEARCH : Respect, Multicriteria Management, Happiness

by

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As Physics is modelling Natural Real World situations, Operational Research is modelling Human Systems. I strongly believe that, for that reason, OR will have a major role to play in the future.

The Human Systems, especially the socio-economic ones, are becoming day after day more and more complex, even hypercomplex. Everyday new regulations arise: local, regional, federal, national, international ones. Every day new markets break out, others close. Every day new opportunities suddenly appear. Every day new needs, new claims, new demands are expressed. Every day new technologies are finalised. Every day some raw materials exhaust,... Moreover the evolution of such systems is chaotic, unexpected discontinuities are taking place, new components emerge, new trends are initiated,... so that the future is unpredictable. It is no longer possible to manage qualitatively Human systems only by appreciation or by feeling. Like in Physics, quantitative tools are now also more and more requested to describe, to understand and to manage our Real World human environment. Only modelling, organisation and structuration tools will provide the decision-makers with a clear view of how to make the appropriate decisions. It is the field of OR.

On the other hand the future of mankind is extremely worrying. Two thousands years ago, say at the time of the Greek and Roman civilisation, human beings had no significant influence on the

evolution of Earth. Presently, the industrial development is so strong that Man can decide on the future of our planet. Human beings are becoming more and more numerous, natural resources exhaust, waste is increasing, human behaviour pollutes our environment, the temperature of the atmosphere increases, ice on earth is melting, the sea level could possibly rise with 100m so that 90 % of the agricultural area would disappear,... Our planet is in danger ! However let us be optimistic: human beings are clever, very clever. Fantastic tools are now at their disposal for analysing, investigating, simulating and managing the future, new tools can be developed, research is progressing. I strongly believe that an appropriate management of the future can harmoniously secure mankind for thousands of year, but a non appropriate one could bring us into insuperable difficulties very soon, possibly in a fifty years from now.

OR is now facing a bifurcation point. An Ethical behaviour for the management of the future is requested ! Everybody is involved, everybody has to contribute. It is a major challenge for all OR people.

What is requested ? Ethics in OR for me means:

Respect, Multicriteria management and Happiness.

Respect: At least four main communities are involved in decision making: the Industry, the Economy, the Governments and People. An Ethical behaviour implies that each community should respect the other ones when decisions are made. Without respect the harmonious management of the future would be strongly jeopardised.

Multicriteria Management: Each community has its own objectives, its own optimisation criteria. The Industry has technological ones, the Economy financial ones, the Governments social ones and People environmental ones. People request sustainable development, a proper future for their children and for the children of their children.

Among the set of possible decisions, each community has at any time an optimal solution according to his own optimisation criterion. But the notion of optimal solution is very weak, probably the weakest ever produced in OR. Change the objective function and you have another optimal solution ! Most of the concerned people have in

mind that the optimal solution is the absolute best one. This is wrong ! Definitely wrong ! Each community has its own objectives, its own optimal solution. They are all different ! The notion of optimal solution is extremely unstable and fragile. Moreover, it is often the case that the optimal solution of a particular community brings the Earth into danger: "maximum production" implies exhaust of natural resources, "optimal financial strategies" imply less money for social affairs, optimal environmental programmes threaten research, experimentation and technology. What we need is to integrate all the objectives, the criteria of all communities. We need compromise solutions, no longer optimal ones. Up to now the only tool to reach compromises is Multicriteria Analysis. Ethics requests a pluralistic view, a multicriteria management.

Happiness: It is crucial for each community to feel happy with the compromises reached. It is a matter of respect with regard to others. It is beautiful and great to feel happy when you know that the point of view of all parties have been taken into account. If one particular group doesn't feel satisfied with compromises and starts manoeuvring to move the decision to its own optimal one, then a war starts. A bad war ! No happiness, no welfare is possible with such wars. No harmonious future can be reached if all the decision actors don't feel happy with compromises. Feeling happy with the decisions, which take all the point of views into account, is also a question of Education and therefore OR should also be involved in Educating People.

Ethics including **Respect, Multicriteria Management and Happiness** consists in the bifurcation point OR has to face now. If we don't succeed, our future is in danger.

This message has been diffused during the 12th Mini Euro conference (Brussels, april 2002). OR has a brilliant future if we succeed in enriching our models with Ethics. This is also the major goal pursued by the Euro Working Group Prometheus on Ethics (www.prometheus.vub.ac.be).

J-Pierre Brans
Past President of Euro
April, 2002



MCDA Research Groups

Presentation of the French ROADEF working group on Multiple Objective Mathematical Programming (PM2O)

by

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and

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The french work group on Multiple Objective Mathematical Programming (PM2O) is an official work group of the French Society on Operations Research and Decision Aid (ROADEF). The creation of this work group dates back to January 2000 and it aims to bring together the french speaking community interested in the optimization of conflictual criteria, the operations research and decision making. Therefore, theoretical as well as practical issues are considered by the group.

Among the theoretical issues of interest, we can quote methods for vector optimization, performance evaluation of multiple objective algorithms, complexity of multiple objective optimization problems, and general frameworks for solving these problems. We consider not only these topics as academic ones but also within application fields as scheduling, workshop layout, graph theory, assignment problems, etc.

One of the aim of the PM2O work group is to be open to every person interested in sharing information on the topics of the group and making the everyday life of the group easier. Thus, young as well as confirmed researchers of the field can come in the meeting to exchange ideas, problems and eventually provide answers. The talks and discussions are in French and in English (when non french speaking people attend to the meeting).

The members of the PM2O work group meet twice a year in different places of France or even french speaking countries. The first meeting held in Valenciennes (September 1999), the second one in Tours (November 2000), the third one in Mons (Belgium, May 2001), and the last one in Paris (November 2001). At each meeting planned presentation of at least one hour are done, making an extensive use of the "blackboard". The meeting is closed by a "Round Table".

All is done in order to have fruitful exchanges. After each meeting, a booklet containing the talks is edited and distributed to participants. To know more about the PM2O work group, please don't hesitate to visit our web site (www.li.univ-tours.fr/pm2o) or to send an email to one of the co-ordinator of the group.

Forum

Decision Conferencing

by

Professor Larry Phillips

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Generating a sense of common purpose and agreeing the way forward is often desired in organisations but not always achieved. The reasons are many: local concerns may conflict with the aims of the organisation, personalities may clash, individuals may be too averse to taking risks, plans that are best for each unit in the organisation may not be collectively best. Whatever the reason, there may be a place for an improved approach to decision making, so people can arrive at a shared understanding of the issues, develop a sense of common purpose and achieve commitment to action. Those are the purposes of *Decision Conferencing*.

What is *Decision Conferencing*? *Decision Conferencing* is a series of intensive working meetings, called decision conferences, attended by groups of people who are concerned about some complex issues facing their organisation. There are no prepared presentations or fixed agenda; the meetings are conducted as live, working sessions lasting from one to three days. A unique feature is the creation, on-the-spot, of a computer model which incorporates data and the judgements of the participants in the groups. The model is often based on multi-criteria decision analysis (MCDA), which provides ample scope for representing both the many conflicting objectives expressed by participants, and the inevitable uncertainty about future consequences. The model is a 'tool for thinking' enabling participants to see the logical consequences of differing viewpoints, and to develop higher-level perspectives on the issues. By examining the implications of the model, then changing it and trying out different assumptions, participants develop a shared understanding and reach agreement about the way forward.

Stages in a typical Decision Conference. Four stages typify most decision conferences, though every event is different. The first phase is a broad exploration of the

issues. In the second stage, a model is constructed of participants' judgements about the issues, incorporating available data. All key perspectives are included in the model, which is continuously projected so all participants can oversee every aspect of creating the model. In the third stage, the model combines these perspectives, reveals the collective consequences of individual views, and provides a basis for extensive exploration of the model, always done on-line. Discrepancies between model results and members' judgements are examined, causing new intuitions to emerge, new insights to be generated and new perspectives to be revealed. Revisions are made and further discrepancies explored; after several iterations the new results and changed intuitions are more in harmony. Then the group moves on to the fourth stage, summarising key issues and conclusions, formulating next steps and, if desired, agreeing an action plan or set of recommendations. The facilitator prepares a report of the event's products after the meeting and circulates it to all participants. A follow-through meeting is often held to deal with afterthoughts, additional data and new ideas.

Role of the facilitators. The group is aided by two facilitators from outside the organisation who are experienced in working with groups. The main tasks of the facilitators are to see and understand the group life, and to intervene, when appropriate, to help the group stay in the present and maintain a task orientation to its work. The facilitators attend to the processes occurring in the group, provide structure for the group's tasks, but refrain from contributing to content. They structure the discussions, helping participants to identify the issues and think creatively and imaginatively. The facilitators help participants in how to think about the issues without suggesting what to think.

Benefits of *Decision Conferencing*. The marriage in *Decision Conferencing* of information technology, group processes and modelling of issues provides value-added to a meeting that is more than the sum of its parts. Follow-up studies, conducted by the Decision Analysis Unit at the London School of Economics and by the Decision Techtronics Group at the State University of New York, of decision conferences in the United Kingdom and the United States, for organisations in both the private and public sectors, consistently show higher ratings by participants for decision conferences than for traditional meetings. Organisations using *Decision Conferencing* report that the process helps them to arrive at better and more acceptable solutions than can be achieved using usual procedures, and agreement is reached more quickly. Many decision conferences have broken through stalemates created previously by lack of consensus, by the complexity of the problem, by vagueness and conflict of objectives, by ownership in 'fiefdoms', and by failure to think creatively and freshly about the issues.

Why *Decision Conferencing* works. *Decision Conferencing* is effective for several reasons. First,

participants are selected to represent all key perspectives on the issues, so agreed actions are unlikely to be stopped by someone else arguing that the group failed to consider a major factor. Second, with no fixed agenda or prepared presentations, the meeting becomes 'live', the group works in the 'here-and-now', and participants get to grips with the real issues that help to build agreement about the way forward. Third, the model plays a crucial role in generating commitment. All model inputs are generated by the participants and nothing is imposed, so that the final model is the creation of the group, thereby 'owned' by participants. Perhaps most important, the model helps to minimise the threat to individuality posed by the group life: the model reveals higher-level perspectives that can resolve differences in individual views, and through sensitivity analysis shows agreement about the way forward in spite of differences of opinion about details. Fourth, computer modelling helps to take the heat out of disagreements. The model allows participants to try different judgements without commitment, to see the results, and then to change their views. Instant play-back of results which can be seen by all participants helps to generate new perspectives, and to stimulate new insights about the issues.

A brief history of Decision Conferencing. *Decision Conferencing* was developed in the late 1970s by Dr Cameron Peterson and his colleagues at Decisions and Designs, Inc., largely as a response to the difficulty in conducting a single decision analysis for a problem with multiple stakeholders, each of whom takes a different perspective on the issues. The approach was taken up in 1981 at the LSE's Decision Analysis Unit by Dr Larry Phillips, who integrated into the facilitator's role many of the findings about groups from work at the Tavistock Institute of Human Relations. The service and supporting MCDA software continued to be developed throughout the 1980s in association with International Computers Limited and Krysalis Limited. As *Decision Conferencing* spread around the globe, facilitators needed to share experiences, so they created the International *Decision Conferencing* Forum, which meets annually, and the UK *Decision Conferencing* Forum, which gathers twice a year. *Decision Conferencing* is now offered by about 20 organisations located in England, the United States, Australia, Portugal and Hungary.

When is Decision Conferencing appropriate? *Decision Conferencing* can be applied to most major issues facing private organisations, government departments, charities and voluntary organisations. Topics typically cover operations, planning or strategy. For example, organisations have used *Decision Conferencing* to develop corporate plans and strategies; to evaluate alternative visions for the future; to prioritise R&D projects and create added value; to design factories, ships and computer systems; to resolve conflict between groups; to allocate limited resources across budget categories; to evaluate the effectiveness of government policies, schemes and

projects; to improve utilisation of existing buildings and plant; to determine the most effective use of an advertising budget; to assess alternative sites for a technological development; to deal with a crisis imposed by potentially damaging claims in a professional journal; to develop a strategy to respond to a new government initiative and to create a new policy for health care provision. Any issue that would benefit from a meeting of minds in the organisation can be effectively resolved with *Decision Conferencing*, which provides a way for 'many heads to be better than one.'

Experience shows that *Decision Conferencing* works best in organisations when four conditions are met reasonably well. First, the style of decision making in the organisation should allow for consultation and deliberation, time allowing. Communication links should exist across the organisation's divisions and departments, so that information flows laterally as well as vertically. Third, a climate of problem solving should exist, so that options can be freely explored. Finally, authority and accountability should be well-distributed throughout the organisation, neither concentrated at the top nor totally distributed toward the bottom. When these conditions are met, *Decision Conferencing* can release the creative potential of groups in ways that enable both the individual and the organisation to benefit.

For more information about decision conferencing, see the website maintained by Enterprise LSE, the entrepreneurial arm of the LSE: www.decision-conferencing.com

Software

IRIS 1.0

(Interactive Robustness analysis and parameters' Inference for multicriteria Sorting – Version 1.0)

Methodology by:

Luís Dias^(1,2), Vincent Mousseau⁽³⁾, José Figueira^(1,2,3), João Clímaco^(1,2), and Carlos Gomes Silva^(1,4)

IRIS software design and development by:

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IRIS (Interactive Robustness analysis and parameters' Inference for multicriteria Sorting) is a Decision Support Software designed to address the problem of sorting a set of actions (alternatives, projects, candidates, etc.) into predefined ordered categories, according to their evaluations (performances) on multiple criteria. For instance, it may be used to sort funding requests according to merit categories (e.g. "Very good", "Good", "Fair", "Not eligible"), or to sort loan applicants into categories (e.g. "Accept", "Require more collateral", "Reject"), or to sort employees in a company into categories that define incentive packages, etc.

IRIS implements the methodology presented in Dias *et al.* (2002), using a pessimistic concordance-only variant of the ELECTRE TRI method. Rather than demanding precise values for the ELECTRE TRI parameters, IRIS allows to enter constraints on these values, namely assignment examples that it tries to restore. It adds a module to identify the source of inconsistency among the constraints when it is not possible to respect all of them at the same time, according to a method described in Mousseau *et al.* (2002). On the other hand, if the constraints are compatible with multiple assignments for the actions, IRIS allows drawing robust conclusions by indicating the range of assignments (for each action) that do not contradict any constraint.

The main characteristics of IRIS are the following:

- IRIS implements a concordance-only variant of the pessimistic ELECTRE TRI.
- IRIS accepts imprecision concerning the criteria weights and the cutting level. The users may indicate intervals for each of these parameters, as well as linear constraints on the weights, rather than being forced to indicate precise values for all these parameters. Furthermore, the constraints may be defined indirectly, as indicated in the next item.
- IRIS accepts assignment examples, where the users indicate minimum and maximum categories for some of the actions, according to their holistic judgement (e.g. "action a_1 is a typical element of C_3 ", or "action a_2 should be placed in category C_3 or higher", or "I hesitate: action a_2 should be placed in category C_3 or C_4 "). These assignment examples are translated into constraints on the parameter values, meaning that the assignments of ELECTRE TRI should restore these examples.
- When the constraints are inconsistent, IRIS infers a combination of parameter values that

least violates the constraints, by minimizing the maximum deviation. Then, it shows the sorting that corresponds to these parameter values (see example in Fig. 1). Furthermore, a module becomes available to determine the alternative subsets of constraints that must be removed to restore the consistency (see example in Fig. 2).

- When the constraints are consistent, IRIS infers a "central" combination of parameter values by minimizing the maximum slack. For each action, it depicts the category corresponding to that combination, as well as the range of categories where the action might be assigned without violating any constraint (robustness analysis). For each category in the range IRIS may also determine a combination of parameter values that assigns the action to that category (see example in Fig. 3).
- Moreover, when the constraints are consistent, IRIS may compute some indicators concerning the precision of the inputs (by estimating the volume of the polyhedron of all feasible combinations of parameter values) and the precision of the outputs (by indicating the geometric mean of the number of possible assignments per action). See example in Fig. 4.

These features allow decision makers to build sorting models in a progressive and interactive manner, where the output at a given iteration is used to guide the revision of the input for the following iteration. The general idea is to start with few constraints of the parameter values, adding more inequalities as a product of an interactive learning process about the problem and the method. This process should aim at progressively reducing the set of accepted combinations of parameter values, until the end users (decision makers, problem owners) are satisfied with the results' precision, and yet comfortable with and confident about the constraints introduced.

The final outputs of the procedure are:

- a set of constraints and assignment examples defining a set of acceptable combinations of parameter values;
- an inferred combination of parameter values defining a model in a precise manner;
- a precise assignment or range of assignments for each action in A that is robust with respect to the constraints inserted.

However, the most important outcome may be that the end users will increase the insight on their view of the problem, learn about their preferences, and will possibly modify their opinions.

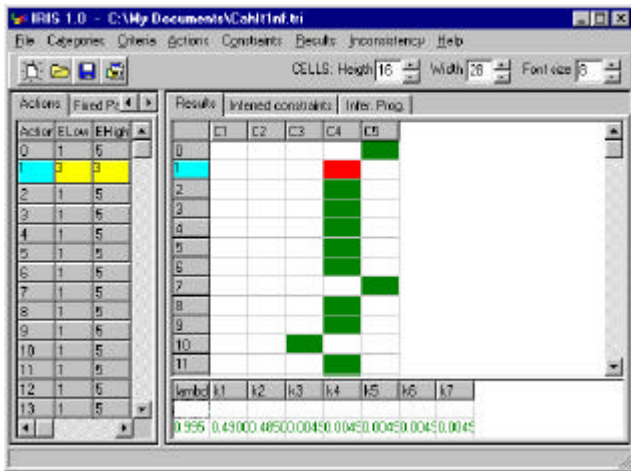


Figure 1. The proposed sorting does not restore the assignment example that a_1 belongs to C_3 due to inconsistent constraints. It corresponds to the parameter values indicated on the right bottom of the screen.

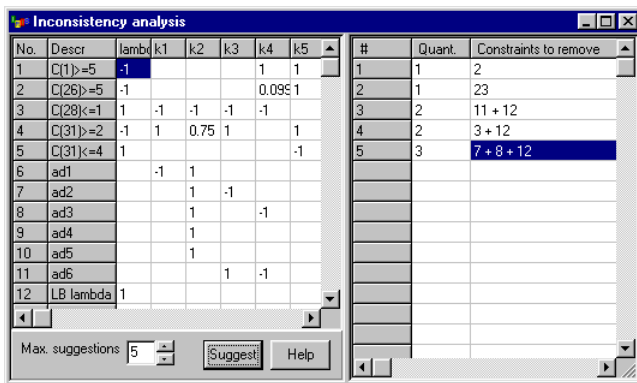


Figure 2. Given an inconsistent system of constraints (on the left), IRIS suggests five alternative ways to restore the consistency by removing constraints. The first suggestion is to remove constraint no. 2; the fifth suggestion is to remove constraints no. 7, 8, and 12.

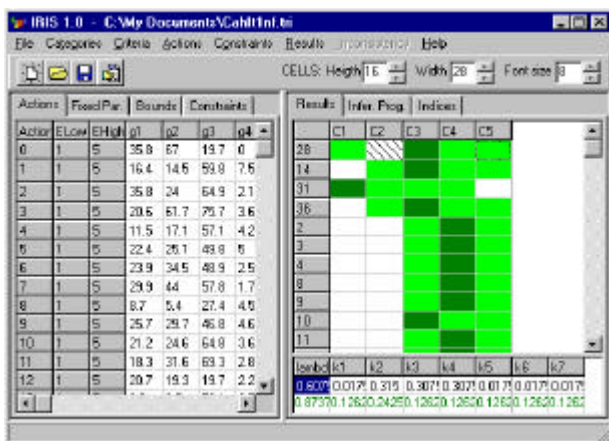


Figure 3. There is a range of categories where each action may be assigned to without violating any constraint (e.g. a robust conclusion is that a_2 is not worse than C_3). The

proposed assignment (darker cell) corresponds to the inferred parameter values shown in the last row of the grid on the right. The parameter values shown in the penultimate line of that grid lead to the assignment of a_{28} to C_5 , corresponding to the selected cell. If the user chooses another cell these values will change. IRIS also shows that a_{28} cannot be assigned to C_2 , regardless of the parameter values that are chosen.

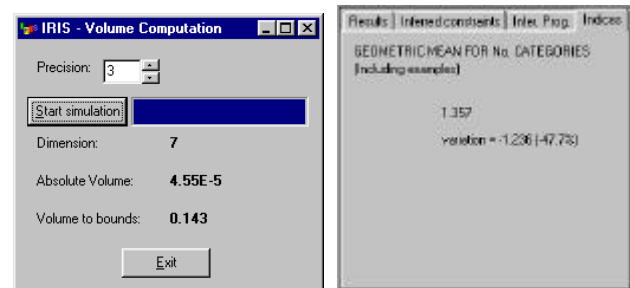


Figure 4. (Left:) the constraints define a 7-dimension polytope of very small volume; from the combinations of parameter values that satisfy the bounds, about 14.3% also respect the remaining constraints. (Right:) the geometric mean of the number of categories where each action may be assigned (respecting all the constraints) is now 1.357, which is less 47.7% relatively to the previous iteration.

MORE INFORMATION

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Mousseau, V. J. Figueira, L. Dias, C. Gomes da Silva, J. Clímaco (2002), "Resolving inconsistencies among constraints on the parameters of an MCDA model", to appear in the *European Journal of Operational Research*.
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Persons and Facts

A.Tsoukiàs est le nouveau responsable du thème “Bases axiomatiques, conceptuelles et procédurales de l'aide multicritère à la décision (Alexis Tsoukiàs),” au LAMSADE en remplacement de Bernard Roy.

International Society on MCDM - Elections Results. The successful candidates are: João Clímaco, Matthias Ergthott, Carlos Romero, Jyrki Wallenius.



About the 55th Meeting

by

Felix Rauschmayer and Martin Drechsler

The 55th meeting (14-16 march 2002) took place at the UFZ, Centre for Environmental Research in Leipzig, Germany, one week before the famous book fair. The UFZ is one of Europe's largest environmental research facilities (staff of 650, mainly natural scientists), having been founded after Germany's reunification, 10 years ago. The applied research focuses on landscape based environmental problems – a taste of which was given during the excursion on Saturday. Having strengthened the social science department during the last years, methodology aiming at integrating natural and social science models and results becomes more and more important. MCDA is used in this sense at the UFZ, and its further development for nature conservation and water basin management is enhanced by a working group of actually 5 scientists (natural science – Martin Drechsler, and social science – the others). This intention shaped the theme of the meeting: “Nature in and Nature of MCDA” as well as the financial grant by LANU, the Saxonian foundation for the protection of nature and the environment, that made the meeting possible. Further support came from EURO for student's attendance and from the Saxonian ministry of science and culture for participants from Eastern Europe, and from the UFZ itself.

15 papers have been presented orally at the meeting (abstracts and two papers are available at www.oesa.ufz.de/mcda55) to more than 40 participants from 12 countries (Australia, Belgium, Germany, Estonia, France, UK, Ireland, Italy, Canada, Lithuania, Austria,

Switzerland). 3 papers have been presented bilingually (i.e. French with English slides), one further English presentation had a French abstract. The other presentation were on English only (even from a French presenter). So, the bilingual experiment did not fully succeed, but it was felt (and Bernard Roy expressed it during the session on working group issues) that more efforts should be undertaken to have bilingual presentations (in both directions). Alors, sortez vos dictionnaires and translate your slides and abstracts.

The meeting had less participants than previous ones; This was perhaps due to a strong participation in the 54th meeting in Durbuy, the MCDA-meeting in Brussels in April, or to the fear of cold weather. We did all not to disappoint the participants and hid the sun one day before the conference telling it to stay behind clouds until Sunday (which it did). But less is not always worse, and it definitely was not the case at the 55th meeting (despite of two last-minute cancellations). Mephistopheles joined us in Auerbach's cellar (read Faust!), and Brazilian music warmed us at the workshop's buffet....

The excursion on Saturday (20 participants) took us to two locations: to SAFIRA, a research site on remediation of heavy groundwater pollution and to a museum on the flooding of Europe's largest open cast-mining site (60 km²) to create several lakes covering some 25 km², as well as on landscape architecture at its shore. We have all been impressed by the amount of pollution in the ground water beneath the former centre of chemical industry in Eastern Germany, the city of Bitterfeld. Several million cube meter of highly toxic water are enclosed in a groundwater bubble below the city, a site of the carbon and chemical industry for the last 100 years, with many dumps containing plenty of unknown chemical material. The UFZ, as well as other research institutions examine different procedures to clean the water *in situ*: procedures are tested here for a problem existing world-wide without any solutions yet. The second destination – with links to the first because of different groundwater streams due to the flooding of the former open cast mine – teased our imagination. We tried to imagine the landscape once the flooding and reforestation finished and we projected the museum models of landscape art into their real fitting (unfortunately, we dot have enough time to see them *in natura*).

Final Program / Programme Définitif

Thursday/Jeu, 14 March/mars:

- 14.00 Welcome by Prof. Dr. Peter Fritz, Scientific Director of the UFZ. Bienvenue par Prof. Dr. Peter Fritz, Directeur scientifique de l'UFZ.
- 14.15 Introduction by/par Felix Rauschmayer and/et Martin Drechsler

Session I: Chair: Maria Franca Norese

- 14.30 Une démarche participative multicritère pour la gestion du bassin de la rivière. Etchemin (Québec, Canada), Nathalie Molines, D. Bourret, J.J. Chevallier, S. Daudelin, J.M. Martel (St. Etienne)
- 15.00 Multicriteria Decision Support for Water Quality Management of River Basins. Albrecht Gnauck (Cottbus).

15.30 *Coffee break / pause café*

Session II: Chair: Ines Omann

- 16.00 Multi-criteria Evaluation of Logging in Tropical Rainforests. Andreas Huth (Leipzig).
- 16.30 Deliberative Multi Criteria Evaluation of Ecosystem Services in Australia. Wendy Proctor (Canberra).
- 17.00 Application of Hasse Diagram Technique and its Possible Extension by Tournament Theory. Ute Simon, R. Brüggemann, S. Pudenz (Berlin).

Discussion papers / papiers soumis à discussion

1. La méthode multicritère OMEGA illustrée à la localisation d'éoliennes. Pascal Oberti (Corte).
 2. MCDA in the selection of landfill facilities in Ireland. Martin G. Rogers (Dublin)
- 19.00 *Mayor's reception in the (new) town hall of Leipzig*
Réception du maire dans la (nouvelle) mairie de Leipzig.
- 20.00 *Dinner in "Auerbach's Keller" (individual payment).* *Dîner dans "Auerbach's Keller" (payment individuel).*

Friday/Vendredi, 15 March/mars:**Session III: Chair: Walter Habenicht**

- 9.30 MCDA Software ProDecX for Multi-criteria Analysis in Uncertainty. Frank Koester, M. Zahl, M. Drechsler (Oldenburg/Leipzig).
- 10.00 Searching for Fuzzy Classes in a Remote Sensing Image. Daniel Gómez, J. Montero, J. Yáñez, C. Poidomani (Madrid/Catania).
- 10.30 Use of Affinity Indexes in Multicriteria Analysis. Christiane Dujet (Lyon).

Discussion paper / papier soumis à discussion

Une démarche interactive en programmation linéaire multiobjectif sous information incomplète et avec plusieurs décideurs. Bruno Urli, R. Nadeau (Rimouski).

11.00 *Coffee break / pause café*

Session IV: Chair: Freerk A. Lootsma

- 11.30 Méthologie de hiérarchisation des zones à risque d'effondrements miniers dans un objectif d'aménagement du territoire. Myriam Moktharia Merad (Nancy).
- 12.30 Participative Approach and Multicriteria Analysis. Maria Franca Norese, B. Jaretti (Torino).

Discussion paper / papier soumis à discussion

On Comparison Of Expected Value Standard Deviation Solutions and beta-Solutions. Leonidas L. Sakalauskas (Vilnius).

13.00 *Lunch break / déjeuner*

14.0 *Working group issues*

Session V : Chair: Daniel Gómez

- 14.30 A Revision of Basic Concepts in Multi-Criteria Decision Analysis. Freerk A. Lootsma (Delft).
- 15.30 Enumerative cuts in Integer Linear Vector-Optimization Problems. Walter Habenicht (Stuttgart).

Discussion paper / papier soumis à discussion

Rough Set Approach to Economic Re-use of Historical Buildings: The Venetian Villas Case. Chiara D'Alpaos, S. Greco, B. Matarazzo, P. Rosato, R. Slowinski, V. Zanatta (Poznan).

16.00 *Coffee break / pause café*

Session VI: Chair: Marc Pirlot

- 16.30 Application of Multicriteria Optimization Methods in Design Process. Ivan Kolarov, N. Tontchev, T. Kableskov (Sofia).
- 17.00 Numerical Examinations of Problems of Multiple Criteria Decisions. Friedel Peldschus, B. Reichelt (Leipzig).
- 17.30 A Computational Study on the Multiple Objective Flowshop Problem. Martin Josef Geiger (Stuttgart).

Discussion papers / papiers soumis à discussion

1. Multicriterial Decisions Using Continuously Logic. Vitaly Levin (Penza).
2. Some stable iterative methods for nonlinear least squares problem. Otu Vaarmann (Tallinn).
3. Modelling and Forecasting the Construction Environment Protection in Lithuania . E.K. Zavadskas, A. Kaklauskas (Vilnius).

18.15 *Workshop dinner / Buffet des Journées*

Saturday/Samedi, 16 March/mars:

- 8.45 Bus leaves for excursion at tourist information (opposite to the main station). Départ du car pour l'excursion à "Tourist information" (en face la gare centrale).
- 9.00 Bus leaves for excursion at UFZ.
- 10.00 Visit of SAFIRA plant / Visite du site SAFIRA
- 11.30 Visit of Goitzsche Museum / Visite du musée Goitzsche.
- 14.00 (approx.) return in Leipzig (bus stops at UFZ and tourist information). (approx.) retour à Leipzig (arrêts du car à l'UFZ et à "Tourist Information").

**Forthcoming Meetings**

(This section is prepared by Luís Dias and Carlos Henggeler Antunes)

44th annual conference of the Canadian Operational Research Society (CORS) / 43e Congrès annuel de la Société Canadienne de Recherche Opérationnelle (SCRO), June 3-5, 2002, Toronto, Canada. URL: <http://www.cors2002.org/>

MOPGP'02 The Fifth International Conference on Multi-Objective Programming and Goal Programming: Theory & Applications, Nara, Japan, June 4-7, 2002. URL: <http://vanilla.eie.eng.osaka-u.ac.jp/mopgp02/index.html>.

Ninth International Symposium on Locational Decisions (ISOLDE IX). June 12-18, 2002, Fredericton, New Brunswick, Canada. URL: <http://www.unb.ca/conferences/isolde9/index.html>

The 30th International Conference on "Computers and Industrial Engineering", Theme: Information Technology and Engineering: Theory and Applications, Tinos Island, Greece, June 29 – July 3, 2002. <http://cda2.imse.lsu.edu/tinos2002/index.htm>

International Conference on Decision Making and Decision Support Systems in the Internet Age (DSI-Age 2002). University College Cork (Cork, Ireland), 4th-7th July 2002. <http://afis.ucc.ie/DSIAge2002>.

IFORS 2002, Edinburgh, Scotland, UK, 8-12 July 2002. URL: www.ifors.org, barrett@orsoc.org.uk, tel: +44 212 233 9300; fax: +44 121 233 0321.

16th JISR-IIASA Workshop on Methodologies and Tools for Complex System Modeling and Integrated Policy Assessment July 15-17, 2002, IIASA, Laxenburg, Austria URL: <http://www.iiasa.ac.at/~marek/wrksp/csm02/>

The 7th Asia Pacific Decision Sciences Institute (APDSI) Annual Meeting Bangkok, Thailand, July 24-27, 2002. Web page: <http://www.apdsi2002.com>

International Workshop on Heuristics. July 24-27, 2002, Beijing, China. URL: <http://www.info.univ-angers.fr/Beijing-IWH02/>

2nd Annual McMaster Optimization Conference: Theory and Applications (MOPTA 02), August 1-3, 2002, McMaster University, Hamilton, Ontario, Canada. URL: <http://www.cas.mcmaster.ca/~mopta/>

OPERATIONS RESEARCH 2002: International Conference on Operations Research. September 2-5, 2002, University of Klagenfurt, Austria. URL: <http://www-sci.uni-klu.ac.at/or2002/>

Eighth International Conference On Principles and Practice of Constraint Programming (CP-2002). September 7-13, 2002, Ithaca, NY, USA. URL: <http://www.cs.cornell.edu/cp2002/>

M P S N – II The Second Workshop on Multiobjective Problem Solving from Nature (web site: <http://iridia.ulb.ac.be/~jknowles/MPSN-II/>) in association with PPSN VII: The Seventh International Conference on Parallel Problem Solving from Nature, Granada, Spain, September 7th--11th 2002. (<http://ppsn2002.ugr.es/>)

7th International Command and Control Research and Technology Symposium, September 16 - 20, 2002, Loews Le Concorde Hotel, Québec City, QC, Canada. Web page: <http://www.dodccrp.org/>

9th International Conference on Operational Research (KOI 2002). October 2-4, 2002, Trogir, Croatia. URL: <http://www.koi2002.efzg.hr/>

56th Meeting of the EWG "Multicriteria Aid for Decisions", 3-5 October 2002, Coimbra, Portugal. Organizers: Carlos Henggeler Antunes (cantunes@inescc.pt), João Clímaco (jclimaco@inescc.pt) and José Figueira (figueira@fe.uc.pt). Web site: www4.fe.uc.pt/mcda56. For more informationans: mcda56@inescc.pt

The Fifth International Conference on Electronic Commerce Research (ICECR-5). October 23-27, 2002, Montreal, Canada. URL: <http://tecom.cox.smu.edu/icecr5/>

IX CLAIO The biennial Latin-Ibero-American Conference in Operations Research. October 27-31, 2002, Concepción, Chile. URL: <http://www.udec.cl/~claioksi/english/informacion.htm>

MOMH : WORKSHOP ON MULTIPLE-OBJECTIVE METAHEURISTICS (free of charge participation) Carre des Sciences, Paris - France November 4-5, 2002 <http://tew.ruca.ua.ac.be/eume/momh.html>, <http://www.li.univ-tours.fr/pm2o> Marc.Sevaux@univ-valenciennes.fr

IV ALIO/EURO Workshop on Applied Combinatorial Optimization. November 4-7, 2002, Pucón, Chile. URL: <http://www.inf.puc-rio.br/alioeuro2002/>

The 3rd International Conference on Decision Making in Urban and Civil Engineering, London - November 2002, <http://www.serenade.org.uk/>.

International Conference on Fuzzy Systems and Knowledge Discovery (FSKD'02) / 9th International Conference on Neural Information Processing (ICONIP'02) / 4th Asia-Pacific Conference on Simulated Evolution And Learning (SEAL'02). November 18-22, 2002, Orchid Country Club, Singapore. URL: <http://www.ntu.edu.sg/home/nef/>

International Conference on Systems, Development and Self-organization (ICSDS'2002). November 30-December 1, 2002, Beijing. URL: <http://www.icsds.em.tsinghua.edu.cn/>

2nd ICDM '02: The 2002 IEEE International Conference on Data Mining. December 9-12, 2002, Maebashi TERRSA, Maebashi City, Japan. URL: <http://kis.maebashi-it.ac.jp/icdm02/>

The First International Conference on Optimization Methods and Software. December 15-18, 2002, Hangzhou, China. URL: <http://www.cityu.edu.hk/ma/conference/oms2002.html>

International Conference on Operations Research for Development (ICRD-2002) / XXXV Annual Convention of ORSI. December 27-30, 2002, Anna University, Chennai, India. URL: <http://www.annauniv.edu/orsi-chennai/icord2002/index.html>

Second International Conference on Evolutionary Multi-Criterion Optimization (EMO'03). April 8-11, 2003, Universidade do Algarve, Portugal. URL: <http://conferences.ptrede.com/emo03>

CORS 2003 National Conference (Congrès SCRO 2003). June 1-4, 2003, Vancouver, Canada.

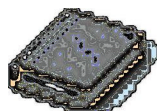
Int. Conf. on FRONTIERS IN GLOBALOPTIMIZATION. June 8-12, 2003, Santorini, Greece. URL: <http://www.aegeanconferences.org/>

2003 SIAM Annual Meeting (AN03). June 16-20, 2003, Queen Elizabeth Hotel, Montreal, QC, Canada.

EURO / INFORMS Joint Int. Meeting. July 6-10, 2003, Istanbul, Turkey. URL: www.istanbul2003.org

5th Int. Congress on Industrial and Applied Mathematics (ICIAM 2003). July 7-11, 2003, Sydney, Australia. URL: http://www.iciam.org/iciamHome/iciamHome_tf.html

The Sixth Conference of the Association of Asian-Pacific Operational Research Societies (APORS) within IFORS. December 8-10, 2003, New Delhi, India. URL: www.apors2003.com



Books

(This section is prepared by Luís Dias)

The book A-MCD-A, selected papers from the 49th and the 50th meeting of the EURO working group on MCDA, appeared recently as EUR 19808 EN report of the JRC at Ispra. the book has been edited by *A. Colorni, M. Paruccini, B. Roy* with the support of an editorial committee including *D. Bouyssou, S. Muratori, A. Tsoukiàs, D. Vanderpooten, R. Wolfler-Calvo*. The book is available through the secretary of the EURO WG.

Ce livre sera envoyé à tous les membres du groupe. Pour tous ceux qui souhaiteraient un exemplaire supplémentaire ou voudraient le faire commander, il vous sera envoyé moyennant des frais s'élevant à 15 Euros pour l'Europe et 20 Euros pour les autres pays. Contact: Madame Dominique François (LAMSADE, Université Paris-Dauphine, Place du Maréchal De Lattre de Tassigny, 75775 Paris Cedex 16, France. E-mail : francois@lamsade.dauphine.fr).

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Aiding Decisions with Multiple Criteria. Essays in Honor of Bernard Roy.

Edited by

**Denis Bouyssou, Eric Jacquet-Lagrèze, Patrice Perny,
Roman Slowinski, Daniel Vanderpooten,
Philippe Vincke**

Aiding Decisions With Multiple Criteria: Essays in Honor of Bernard Roy is organized around two broad themes:

- ♦ Graph Theory with path-breaking contributions on the theory of flows in networks and project scheduling,
- ♦ Multiple Criteria Decision Aiding with the invention of the family of ELECTRE methods and methodological contribution to decision-aiding which lead to the creation of Multi-Criteria Decision Analysis (MCDA). Professor Bernard Roy has had considerable influence on the development of these two broad areas.

Part one contains papers by Jacques Lesourne, and Dominique de Werra & Pierre Hansen related to the early career of Bernard Roy when he developed many new techniques and concepts in Graph Theory in order to cope with complex real-world problems. Part two of the book is devoted to Philosophy and Epistemology of Decision-Aiding with contributions from Valerie Belton & Jacques Pictet and Jean-Luis Genard & Marc Pirlot. Part three includes contributions based on Theory and Methodology of Multi-Criteria Decision-Aiding based on a general framework for conjoint measurement that allows

intransitive preferences. Denis Bouyssou & Marc Pirlot; Alexis Tsoukiàs, Patrice Perny & Philippe Vincke; Luis Dias & João Clímaco; Daniel Vanderpooten; Michael Doumpos & Constantin Zopounidis; and Marc Roubens offer a considerable range of examinations of this aspect of MCDA. Part four is devoted to Preference Modeling with contributions from Peter Fishburn; Salvatore Greco, Benedetto Matarazzo & Roman Slowinski; Salem Benferhat, Didier Dubois & Henri Prade; Oscar Franzese & Mark McCord; Bertrand Munier; and Raymond Bisdorff. Part five groups Applications of Multi-Criteria Decision-Aiding, and Carlos Henggeler Antunes, Carla Oliveira & João Clímaco; Carlos Bana e Costa, Manuel da Costa-Lobo, Isabel Ramos & Jean-Claude Vansnick; Yannis Siskos & Evangelos Grigoroudis; Jean-Pierre Brans, Pierre Kunsch & Bertrand Mareschal offer a wide variety of application problems. Finally, Part six includes contributions on Multi-Objective Mathematical Programming from Jacques Teghem, Walter Habenicht and Pekka Korhonen.

Kluwer Academic Publishers, December 2001, ISBN 0-7923-7611-0, Hardbound

*** **

Multiple Criteria Decision Analysis An Integrated Approach

by

Valerie Belton

*Dept. of Management Science, University of Strathclyde,
Glasgow, UK*

Theodor J. Stewart

*Dept. of Statistical Sciences,
University of Cape Town, Rondebosch, South Africa*

The field of multiple criteria decision analysis (MCDA) - also sometimes termed multiple criteria decision aid, or multiple criteria decision making (MCDM) - has developed rapidly over the past quarter century and in the process a number of divergent schools of thought have emerged.

Multiple Criteria Decision Analysis: An Integrated Approach provides a comprehensive yet widely accessible overview of the main streams of thought within MCDA.

Two principal aims are:

- ♦ To provide sufficient awareness of the underlying philosophies and theories, understanding of the practical detail of the methods, and insight into practice to enable researchers, students and industry practitioners to implement MCDA methods in an informed manner;

- ♦ To develop an integrated view of MCDA, incorporating both integration of different schools of thought within MCDA and integration of MCDA with broader management theory, science and practice, thereby informing the development of theory and practice across these areas.

It is felt that this two-fold emphasis gives a book which will be of value to the following three groups:

1. Practicing decision analysts or graduate students in MCDA for whom this book should serve as a state-of-the-art review, especially as regards techniques outside of their own specialization;
2. Operational researchers or graduate students in OR/MS who wish to extend their knowledge into the tools of MCDA;
3. Managers or management students who need to understand what MCDA can offer them.

Kluwer Academic Publishers, Boston, Hardbound, ISBN 0-7923-7505-X

*** **

Fuzzy Reasoning in Decision Making and Optimization

by

Carlsson, C.,

Abo Akademi University, Abo, Finland;

Fuller, R.,

Eötvös Lorand University, Budapest, Hungary

This book starts with the basic concepts of fuzzy arithmetics and progresses through the analysis of sup-t-norm-extended arithmetic operations, possibilistic linear systems and fuzzy reasoning approaches to fuzzy optimization. Four applications of (interdependent) fuzzy optimization and fuzzy reasoning to strategic planning, project management with real options, strategic management and supply chain management are presented and carefully discussed. The book ends with a detailed description of some intelligent software agents, where fuzzy reasoning schemes are used to enhance their functionality. It can be useful for researchers and students working in soft computing, applied mathematics, operations research, management science, information systems, intelligent agents and artificial intelligence.

Keywords: Soft Computing, Fuzzy Optimization, Fuzzy Reasoning, Fuzzy Intelligent Systems

Springer Verlag, Series: Studies in Fuzziness and Soft Computing. VOL. 82. 2002. XIII, 338 pp. 90 figs., 5 tabs. Hardcover 3-7908-1428-8.

*** **

Evolutionary Algorithms for Solving Multi-Objective Problems

by

Carlos A. Coello Coello
CINVESTAV-IPN

Dave A. Van Veldhuizen
AFMC/DR

Gary B. Lamont
Air Force Institute of Technology

Conceived as a self-contained reference work, this book introduces multiobjective problem (MOP) domain models with a consistent and formal symbolic notation, and provides the reader with all the necessary elements to guide him in the analysis, design, implementation and validation of multi-objective evolutionary algorithms (MOEAs). The authors' comprehensive study of the field goes from its origins in the 1960s to the most recent developments of today. This unique book distills the discipline's state-of-the-art findings in a single text, fulfilling the authors' aim of providing the reader with a useful and complete reference to the field. A newcomer will find enough information to setup his own research plan within this area. An experienced researcher interested in a specific application will find numerous pointers to additional references that will allow him to explore the findings in his particular area of interest, and direct him in uncovering more information. Therefore, this book should be of interest to scientists, engineers, students (in computer science, computer engineering, operations research and other scientific and engineering disciplines) and anyone else interested in multiobjective optimization. The versatility and breadth of material make the book ideal for textbook adoption in graduate-level courses. For instructors' benefit, discussion questions are provided at the end of each chapter to help with designing assignments and organizing in-class discussions, as well as with establishing research plans for students interested in this field.

Contents. Basic Concepts * Introduction * Definitions * General Optimization Algorithm Overview * EA Basics * Origins of Multiobjective Optimization * Classifying Techniques * Using Evolutionary Algorithms * Summary * Discussion Questions * Evolutionary Algorithm MOP Approaches * Introduction * MOEA Research Quantitative Analysis * MOEA Research Qualitative Analysis * Constraint-Handling * MOEA Overview Discussion * Summary * Possible Research Ideas * Discussion Questions * MOEA Test Suites * Introduction * MOEA Test Function Suite Issues * MOP Domain Feature Classification * Summary * Possible Research Ideas * Discussion Questions * MOEA Testing and Analysis * Introduction * MOEA Experiments: Motivation and Objectives * Experimental Methodology *

MOEA Statistical Testing Approaches * MOEA Test Results and Analysis * Summary * Possible Research Ideas * Discussion Questions * MOEA Theory and Issues * Introduction * Pareto-Related Theoretical Contributions * MOEA Theoretical Issues * Summary * Possible Research Ideas * Discussion Questions * Applications * Introduction * Engineering Applications * Scientific Applications * Industrial Applications * Miscellaneous Applications * Future Applications * Summary * Possible Research Ideas * Discussion Questions * MOEA Parallelization * Introduction * Parallel MOEA Philosophy * Parallel MOEA Paradigm * Parallel MOEA Examples * Parallel MOEA Analysis and Issues * Parallel MOEA Development & Testing * Summary * Possible Research Ideas * Discussion Questions * Multi-Criteria Decision making * Introduction * Multi-Criteria Decision Making * Incorporation of Preferences in MOEAs * Incorporation of Preferences in MOEAs * Issues Deserving Attention * Summary * Possible Research Ideas * Discussion Questions * Special Topics * Introduction * Simulated Annealing * Tabu Search and Scatter Search * Ant System * Distributed Reinforcement Learning * Memetic Algorithm * Other Heuristics * Summary * Possible Research Ideas * Discussion Questions * Epilog * APPENDICES: MOEA Classification and Technique Analysis / MOPs in the Literature / Ptrue & PFtrue for Selected Numeric MOPs / Ptrue & PFtrue for Side-Constrained MOPs / MOEA Software Availability * MOEA-Related Information * Index * References.

Kluwer Academic Publishers, ISBN 0-3064-6762-3, 2002.

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Fundamentals of Fuzzy Sets

edited by

Didier Dubois

IRIT, Université; Paul Sabatier, Toulouse, France

Henri Prade

IRIT, Université; Paul Sabatier, Toulouse, France

Fundamentals of Fuzzy Sets covers the basic elements of fuzzy set theory. Its four-part organization provides easy referencing of recent as well as older results in the field.

The first part discusses the historical emergence of fuzzy sets, and delves into fuzzy set connectives, and the representation and measurement of membership functions. The second part covers fuzzy relations, including orderings, similarity, and relational equations. The third part, devoted to uncertainty modelling, introduces possibility theory, contrasting and relating it with

probabilities, and reviews information measures of specificity and fuzziness. The last part concerns fuzzy sets on the real line - computation with fuzzy intervals, metric topology of fuzzy numbers, and the calculus of fuzzy-valued functions. Each chapter is written by one or more recognized specialists and offers a tutorial introduction to the topics, together with an extensive bibliography.

Contents and Contributors. Foreword; L.A. Zadeh. Preface. Series Foreword. Contributing Authors. General Introduction; D. Dubois, H. Prade. Part I: Fuzzy Sets. 1. Fuzzy Sets: History and Basic Notions; D. Dubois, et al. 2. Fuzzy Set-Theoretic Operators and Quantifiers; J. Fodor, R.R. Yager. 3. Measurement of Membership Functions: Theoretical and Empirical Work; T. Bilgic, I.B. T?xFC;rksen. Part II: Fuzzy Relations. 4. An Introduction to Fuzzy Relations; S. Ovchinnikov. 5. Fuzzy Equivalence Relations: Advanced Material; D. Boixader, et al. 6. Analytical Solution Methods for Fuzzy Relational Equations; B. De Baets. Part III: Uncertainty. 7. Possibility Theory, Probability and Fuzzy Sets: Misunderstandings, Bridges and Gaps; D. Dubois, et al. 8. Measures of Uncertainty and Information; G.J. Klir. 9. Quantifying Different Facets of Fuzzy Uncertainty; N.R. Pal, J.C. Bezdek. Part IV: Fuzzy Sets on the Real Line. 10. Fuzzy Interval Analysis; D. Dubois, et al. 11. Metric Topology of Fuzzy Numbers and Fuzzy Analysis; P. Diamond, P. Kloeden. Index.

Kluwer Academic Publishers, Book Series: THE HANDBOOKS OF FUZZY SETS : Volume 7 Boston Hardbound, ISBN 0-7923-7732-X, January 2000 , 672 pp.

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Multicriteria Optimization: State-of-the-Art Annotated Bibliographic Surveys. (Volume 1)

Edited by
M. Ehrgott

*Department of Engineering Science,
University of Auckland (New Zealand).*
and

X. Gandibleux
*University of Valenciennes (France) and
the University of Mons-Hainaut (Belgium).*

Contents.

Preface. Ralph E. Steuer, University of Georgia (USA).
Introduction, M. Ehrgott, University of Auckland (NZ)
and X. Gandibleux, University of Valenciennes (F).
Chapter 1. Theory of Vector Optimization, C. Tammer &
A. Goepfert, University of Halle (D).

Chapter 2. Nonlinear Multiobjective Programming, T. Tanino, H. Kuk, Osaka University (J).

Chapter 3. Goal Programming in the the Period 1990 – 2000, D. Jones & M. Tamiz, University of Portsmouth (UK).

Chapter 4. Fuzzy Multiobjective and Multilevel Optimization, M. Sakawa, Hiroshima University (J).

Chapter 5. Interactive Nonlinear Multiobjective Procedures, K. Miettinen, University of Yvaeskylae (SF).

Chapter 6. Evolutionary Algorithms and Multiple Objective Optimization, C. Coello and C. Mariano Romero, University of Mexico (MX).

Chapter 7. Data Envelopment Analysis in Multicriteria Optimization (Decision Making), H. Nakayama, M. Arakawa, Y.B. Yun, Konan University (J).

Chapter 8. Multiobjective Combinatorial Optimization, M. Ehrgott, University of Auckland (NZ) and X. Gandibleux, University of Valenciennes (F).

Chapter 9. Multicriteria Scheduling Problems, V. T'Kindt & J. C. Billaut, University of Tours (F).

International Series in Operations Research and Management Science, Kluwer Academic Publishers, **Forthcoming.**

*** **

CALL FOR PAPERS

Methodological Foundations of Multi-Criteria Decision Making

Special Issue of the European Journal of Operational Research

Guest-Editors:

Prof. Wlodzimierz Ogryczak

*Institute of Control and Computation Engineering
Warsaw University of Technology, Poland*

and

Prof. Rudolf Vetschera

*Department of Business Studies
University of Vienna, Austria*

Brief description of the topic: The feature issue is intended to provide an overview of developments which are likely to shape the field of Multi-Criteria Decision Making during the coming years. Therefore, we invite the submission of papers that indicate a new direction in MCDM research, either by applying new methods or

applying MCDM to a new class of problems in an innovative way or new possibilities in solving existing problems. Topics could include (but are not limited to) the following areas:

- ◆ Combinatorial multi-criteria problems
- ◆ Sorting and clustering with multiple criteria
- ◆ Use of heuristic methods in MCDM

We specifically invite authors of papers presented at the MCDM Winter Conference in Semmering, Austria, to submit their work for this Feature Issue. However, the Feature Issue is not limited to this event, we seek all papers that present new research contributions to the methodology of MCDM.

Deadline for submissions: July 31st, 2002

Approximate date of completion: January 15, 2003

Address for submissions (postal and electronic):

Electronic (preferred): Rudolf.Vetschera@univie.ac.at

Postal:

Prof. Rudolf Vetschera
Dept. of Business Studies
University of Vienna
Bruenner Strasse 72
A-1210 Vienna
Austria

*** **

CALL FOR PAPERS

MCDA Methodologies in Finance

Special Issue of the Journal of Multi-Criteria Decision Analysis

Guest Editor:
Professor **Constantin Zopounidis**,
Technical University of Crete

The financial decisions of an organization are usually considered in the context of optimization. For example, long term decisions relating to the optimal allocation of funds or the optimal financial structure of a firm or short term decisions related to the management of working capital. Recently, however, such financial problems have been examined from a more comprehensive and more realistic perspective, which overcomes the restrictive framework of optimization and takes into account the complex multidimensional nature of financial problems. Multicriteria decision aid (MCDA) thus provides an appropriate methodological framework for addressing financial decision making problems such as these.

The objective of this special issue is to present the most recent advances in the development and application of MCDA methodologies (multiobjective mathematical programming, multiattribute utility theory, outranking relations, preference disaggregation) for addressing financial-decision making problems. Problem areas of interest include, among others: efficiency evaluation of bank branches, venture capital investments, business failure risk, credit granting, bond rating, mutual funds performance, country risk assessment, corporate performance evaluation, investments analysis, financial planning and portfolio management. Papers might describe new methodological developments, experimental results, development of decision support systems or real-world case studies, but should seek to:

- ◆ present innovative work and results
- ◆ explore themes of interest to both practicing financial decision makers and analysts,
- ◆ demonstrate academic and theoretical rigor.

Submissions (four copies) should be sent to the guest editor by 15 June 2002. For any additional information, please contact the guest editor at:

Professor Constantin Zopounidis
Technical University of Crete
Financial Engineering Laboratory
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73100, Chania, Greece
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E-mail: kostas@ergasya.tuc.gr or kostas@cha.forthnet.gr

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CALL FOR PAPERS

Goal Programming Model: Theory and Applications

Special Issue of Information Systems and Operational Research Journal (INFOR)

Guest Editor

Professor **Belaïd Aouni**
Laurentian University

The paradigm of Multicriteria Decision Aid and Multi-objective Programming lies in the fact that the Decision-Maker (DM) considers many factors of diverse nature in their decisions therefore do not optimize just one criterion or objective. In practice, DM searches for a satisfying compromise among several conflicting objectives. The Goal Programming (GP) model is based on a satisfaction

philosophy and may be viewed as a human property known as intelligence, often marred by ambiguity, that differs considerably from the optimization principle behind mathematical programming.

Available in many versions, GP is the best known model of Multi-Objective Programming. Supported by a network of researchers and practitioners, GP is alive today more than ever, and is continually fed with theoretical developments and new applications with resounding success.

Authors are invited to submit scientific manuscripts dealing with theoretical developments and new applications for the GP model. Submissions must be original and not published elsewhere. Papers will be refereed in accordance with the normal INFOR standards. For more information, please contact the guest editor.

Submit papers to guest editor, Professor Belaïd Aouni at:
School of Commerce and Administration
Laurentian University,
Sudbury, Ontario, P3E 2C6
E-mail: baouni@laurentian.ca
Phone: +1 (705) 675-1151 ext. 2140
Fax: +1 (705) 675-4880

Submission deadline: September 30th, 2002

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European Journal of Operational Research

Special Issue on MCDA methodologies for classification and sorting Vol. 138, Issue 2, Pages 227-458 (16 April 2002)

Edited by
Constantin Zopounidis

Contents:

1. MCDA methodologies for classification and sorting, *Pages 227-228*, Constantin Zopounidis.
2. Multicriteria classification and sorting methods: A literature review, *Pages 229-246*, Constantin Zopounidis and Michael Doumpos.
3. Rough sets methodology for sorting problems in presence of multiple attributes and criteria, *Pages 247-259*, Salvatore Greco, Benedetto Matarazzo and Roman Slowinski.
4. Effectiveness evaluation of expert classification methods, *Pages 260-273*, Oleg Larichev, Artyom Asanov and Yevgeny Naryzhny.
5. Construction of rule-based assignment models, *Pages 274-293*, R. Azibi and D. Vanderpooten.
6. Combining discriminant methods in solving classification problems in two-group discriminant

analysis, *Pages 294-301*, Kim Fung Lam and Jane W. Moy.

7. A multiple objective programming approach for determining faculty salary equity adjustments, *Pages 302-319*, Minghe Sun.

8. Electre-like clustering from a pairwise fuzzy proximity index, *Pages 320-331*, Raymond Bisdorff.

9. An aggregation/disaggregation approach to obtain robust conclusions with ELECTRE TRI, *Pages 332-348*, Luís Dias, Vincent Mousseau, José Figueira and João

10. A multicriteria assignment procedure for a nominal sorting problematic, *Pages 349-364*, Julien Léger and Jean-Marc Martel.

11. A multi-profile sorting procedure in the public administration, *Pages 365-379*, Maria Franca Norese and Susanna Viale.

12. Assigning priorities for maintenance, repair and refurbishment in managing a municipal housing stock, *Pages 380-391*, Carlos A. Bana e Costa and Rui Carvalho Oliveira.

13. Credit risk assessment using a multicriteria hierarchical discrimination approach: A comparative analysis, *Pages 392-412*, M. Doumpos, K. Kosmidou, G. Baourakis and C. Zopounidis. 14.



Articles Harvest

(This section is prepared by Maria João Alves and Carlos Henggeler Antunes)

Adler, Nicole, Lea Friedman and Zilla Sinuany-Stern. Review of ranking methods in the data envelopment analysis context. *European Journal of Operational Research*, vol.140, no 2, 249-265, 2002.

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Séminaires du LAMSADE

“MODÉLISATION DES PRÉFÉRENCES ET AIDE MULTICRITÈRE À LA DÉCISION”

Responsables: Bernard ROY et Daniel VANDERPOOTEN

(le mardi, de 14:00 à 17:00, en salle P510)

26 mars 2002 Conférence de Alexis TSOUKIÀS (LAMSADE, Université Paris-Dauphine) : Préférences on intervals.

9 avril 2002 Conférence de Sébastien DAMART (LAMSADE, Université Paris-Dauphine) : Aide à la décision et démarche de concertation : une revue des outils et des pratiques.

7 mai 2002 Conférence de Yannis SISKOS (Technical University of Crete, Grèce) : Une théorie multicritère de l'évaluation externe de la qualité des services.

Other Works

(Communicated by the authors)

Collections du LAMSADE

(Université Paris-Dauphine)

B. ROY, “Présentation et interprétation de la méthode ELECTRE TRI pour affecter des zones dans des catégories de risque”, Document N° 124, LAMSADE, mars 2002.

K. SRINIVASA RAJU, L. DUCKSTEIN, C. ARONDEL: “Multicriteria analysis for sustainable water resources

planning: A case study in Spain”, Cahier N° 185, LAMSADE, décembre 2001.

K. SRINIVASA RAJU, L. DUCKSTEIN: “Multiobjective fuzzy linear programming for sustainable irrigation planning: An Indian case study”, Cahier N° 186, LAMSADE, décembre 2001.

C. GOMES DA SILVA, J. FIGUEIRA, J. LISBOA and S. BARMAN, “An aggregate production planning model based on multiple criteria mixed integer linear programming”, Cahier N° 188, LAMSADE, janvier 2002.

V. MOUSSEAU, L. DIAS, “Valued outranking relations in ELECTRE providing manageable disaggregation procedures”, Cahier N° 189, LAMSADE, janvier 2002.

S. DAMART, V. MOUSSEAU, I. SOMMERLATT, “Du mode d'implication d'acteurs multiples dans le cadre de l'utilisation d'un modèle d'affectation multicritère : Analyse au regard d'une application à la tarification des transports publics”, Cahier N° 190, LAMSADE, février 2002.

J. FIGUEIRA, “On the bi-criteria network flow problem: A branch-and-bound approach”, Cahier N° 191, LAMSADE, février 2002.

Research Reports of INESC Coimbra

No. 1/2002. "A DEA Study of telecommunications Services in OECD Countries" - Gabriel Tavares and Carlos Henggeler Antunes.

No. 2/2002. "A Multiple Objective Model to Deal with Economy-Energy-Environment Interactions" - Carla Oliveira and Carlos Henggeler Antunes.

No. 3/2002. "A Fuzzy Objective Decision Support Model for Energy-economy Planning" - Ana Rosa Borges and Carlos Henggeler Antunes.

No. 4/2002. " A Multiple Objective Model to Support Capacitor Location in Radial Distribution Networks" - Dulce F. Pires, A.Gomes Martins and Carlos Henggeler Antunes. (in Portuguese)

Dissertations

Amine AÏT YOUNES, "Problèmes liés à la construction d'un pseudo-critère : développements théoriques et implémentation informatique". Thèse de Doctorat de l'Université Paris-Dauphine. Jury : B. ROY (Université Paris-Dauphine, Directeur de thèse), P. VINCKE (Université libre de Bruxelles), M. PIRLOT (Faculté polytechnique de Mons), A. TSOUKIAS, D. VANDERPOOTEN (Université Paris -Dauphine).

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The "Useful links" section of the group's homepage

(<http://www.inescc.pt/~ewgmcda>)

is being enlarged. Contributions of URL links to societies, research groups and other links of interest are welcome.

A membership directory of the European Working Group on "Multiple Criteria Decision Aiding" is available at the same site. If you would like to be listed in this directory please send us your data (see examples already in the directory).

Contact: José Figueira (figueira@fe.uc.pt) or Luís Dias (ldias@inescc.pt)

Web site for the EURO

Working Group "Multicriteria Aid for Decisions"

A World Wide Web site for the EURO Working Group on "Multicriteria Aid for Decisions" is already available at the URL:

<http://www.inescc.pt/~ewgmcda>

This WWW site is aimed not just at making available the most relevant information contained in the Newsletter sections, but it also intends to become an online discussion forum, where other information and opinion articles could appear in order to create a more lively atmosphere within the group.

All information as well as links to other Web sites of interest can be sent to Luís Dias by the e-mail:

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