III. The problem of preemptive feasible scheduling for jobs on multi-processor system is studied. Each job is characterized by specific processing requirements for release time and due date. The processor speeds, which can be different, are given. Interruptions and preemptions are allowed. Corresponding expenditures are taken into consideration. An approximative algorithm, based on calculation of dynamic priorities of jobs, corresponding to its relative urgency, was elaborated.

Human Choice with Individually Difficult Tasks

E.M. Furems[1], O.I. Larichev[1], A.A. Lotov[2], K. Miettinen[3], and G.V. Roizenson[1]

Evguenia M. Furems, Ph.D., Senior Researcher,
Oleg I. Larichev, academician of Russian Academy of Sciences, Head of Department,
Alexander V. Lotov, Ph.D., Head of Dept. of Mathematical Methods for Economic Decision Analysis,
Kaisa Miettinen, PhD,
Grigori V. Roizenson, engineer-programmer

[1]) Institute for Systems Analysis, Russian Academy of Sciences, 9, pr. 60 let Octjabrja, Moscow, 117312, Russia. Tel. (095)-135-85-03; Fax (095)-938-22-09; E-mail oil@isa.ru; http://www.isa.ru/ larichev/

[2]) Computing Center of RAS, Vavilova str., 40, Moscow, 117967 Russia, Tel. (7-095) 135-1209; Fax (7-095) 135-6159; E-mail LOTOV@ccas.ru; http://www.ccas.ru/mmes/mmeda/

[3]) University of Jyvaskyla, Department of Mathematical Information Technology, P.O. Box 35 (Agora), FIN-40351 Jyvaskyla, FINLAND. Tel. + 358 14 260 2743; Fax + 358 14 260 2771; E-mail miettine@mit.jyu.fi; http://www.mit.jyu.fi/miettine/book/

Human behavior in multicriteria choice is studied in a specially constructed procedure based on the decomposition of a multicriteria problem into multiple steps of pair-wise comparisons. The experiments with the Russian and Finnish students were conducted on the base of creating an individually difficult task for each person in accordance with his/her preferences. The goal of the experiment was to study human behavior in order to be able to develop easy-to-use decision support systems. The aforesaid studies indicate that multicriteria object comparison is difficult to the human system for processing information. While solving such problems, human beings make errors as well as use simplifying strategies to adapt the problem to their capabilities. It seems reasonable to support the process of decision making by means of (i) a decomposition of multicriteria

objects to parts (or units) and (ii) step-by-step comparisons of such units regarding their relative strengths and weaknesses.

We suggest the procedure that has the following features.

1. The Decision Maker (DM) has to choose the best object from some set taking into account the values for a number of criteria.

2. All the comparisons have a qualitative nature ('better', 'worse', 'equal').

3. The DM makes a choice during several stages with an increasing number of criteria to be taken into account (two, three, etc.). At each stage, the DM has to complete the pairwise comparison of the corresponding units of the objects. At each stage, the process of comparison is supported with information obtained from the DM in the previous stages.

4. Several stages, including the comparison of all the pairs of criteria, create a round.

The process consists of two rounds that differ only in the order of the criteria presenting to the DM.

The first finding of the experiments is the importance of individually adjusted tasks for the persons. While solving such tasks, they could make meaningful and multicriteria choices and demonstrate stable strategies in most of the cases. That is why we can recommend this approach for future research of human ability to solve multicriteria tasks.

The second finding is the usefulness of two-round experiment arrangements. The first round gives the opportunity to find a compromise between the criteria and to study the problem. The second round allows the persons to improve the selected strategy or to confirm the previous choice (in a majority of the cases). Most probably, the existence of several rounds coincides with real life decision-making when people collect information, study a problem, and after that make the final choice.

Thirdly, the experiments also demonstrate that the order of the criteria presenting influences the results.

The Model of the Buffer Company That Actualizes the Trading by Small and Super Small Lots on the Russian Shares Market

I.I. GASANOV
(Computing Center of RAS, Moscow)

In the report, the model of the financial company playing the role of the buffer between small investors and the exchange, trading the large stock lots, is described. The company manages stock investments of small investors depending on the accumulated funds of the small investors. Analytical researches and computer experiments are realized using the statistical data. The results are used as the basis for estimating the economic effectiveness and financial reliability of the project.