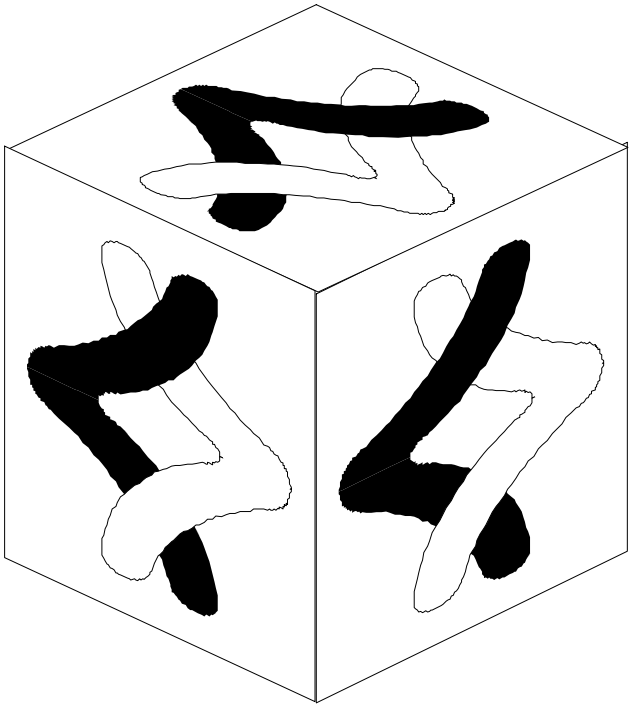

HIPRE 3+ Group Link

User's Guide

By

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1. INTRODUCTION

1.1. About the program

HIPRE 3+ Group Link is a decision support software for group decision making. In this manual it will be called by the abbreviation HPLINK. It provides an interactive platform for on-line analysis and combination of preferences in a group. The program can be used in group meetings to support the decision making process, or in research assignments where several prioritizations given by the analytic hierarchy process (AHP) are combined into an interval preference programming model.

Ways to carry out the group decision process itself are not discussed in detail in this manual. The whole idea of using interval judgments as a way to combine and support group prioritizations is new. It needs much further research and that is why this software is made available. The first steps were taken by Hämäläinen *et. al.* (1992) but you clearly have possibilities for developing other interesting ways of using it too. The illustrative example in this manual gives you an easy introduction to group support by interval techniques.

HIPRE 3+ Group Link is based on the theory for preference programming, also called the interval AHP developed by Ahti Salo and Raimo P. Hämäläinen (see refs.). The preference programming method is implemented in a computer program called INPRE (INterval PREference analysis), which is included in the HPLINK software package. The reader is encouraged to consult the references to learn more about the theoretical foundations of the preference programming approach and to see examples of case studies. The reader is also assumed to be familiar with the AHP method. If not you can easily learn it by experimentation and consulting the literature.

To use the group link features of HPLINK, you need a licenced copy of the HIPRE 3+ software. The demo version does not allow you to save the HIPRE 3+ models. HIPRE 3+ is needed to set the priorities of the individual decision

makers. However, since HPLINK includes the INPRE v 2.0 software, you can also do group analysis based directly on the preference programming method and not use HIPRE 3+ at all.

The preference programming technique used is related to the AHP and its pairwise comparisons so you can only combine prioritizations done in the pairwise mode of HIPRE 3+.

The software is still a β-version and we give no quarantee or take no responsibility for its correct performance.

We would greatly appreciate receiving your comments and experiences from the use of this software. Please, address your correspondence to:

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If you want to minimize reading this guide, you can do the installation described in section 2.1 and then go directly to section 3.1. However, do not proceed until you have read the subsection 'Analysis of the group decision with HPLINK' in section 3.1.

1.2. Using HPLINK in group decision making

This section focuses on technical issues related to the software. The arrangements described below allow the use of HPLINK to support group decision making in several different ways in many different group decision settings.

From the practical point of view there are three things to be considered before starting to apply HPLINK in tasks involving group decision making:

1) Are you interested in carrying out on-line group decision analysis or in combining individual preference statements which have been given beforehand.

2) Are you using a single PC or a local area PC-network.

3) Is Microsoft Windows 3.0 (or higher) available.

In any case, the group members' individual preference statements have to be entered with HIPRE 3+.

The group members' HIPRE 3+ model files have to be saved in the same directory (*group directory*). If you are using only one PC, this directory is located in a local hard drive. In the case of a local area PC-network, the group directory is located in a network drive (and if you are having a real time group meeting). HPLINK combines individual preference statements saved in the HIPRE 3+ model files in the group directory.

With a single PC you can do group decision analysis off line. Our tutorial car selection problem deals with group decision making with a single PC (see the chapter 'TUTORIAL').

A local area PC-network allows on-line group decision making and analysis. A single decision maker enters his judgments with his own workstation running HIPRE 3+. If you are not using Microsoft Windows, HPLINK needs to be run in one dedicated workstation.

With Microsoft Windows, you can run HPLINK and HIPRE 3+ in separate windows. The advantage of the Windows environment is that it allows you to evaluate the group's (and subgroup's) interval model without exiting HIPRE 3+ by switching between different DOS sessions runnig HIPRE 3+ and HPLINK. You can always go back to HIPRE 3+ to continue with the individual prioritizations and see their effects on the group model.

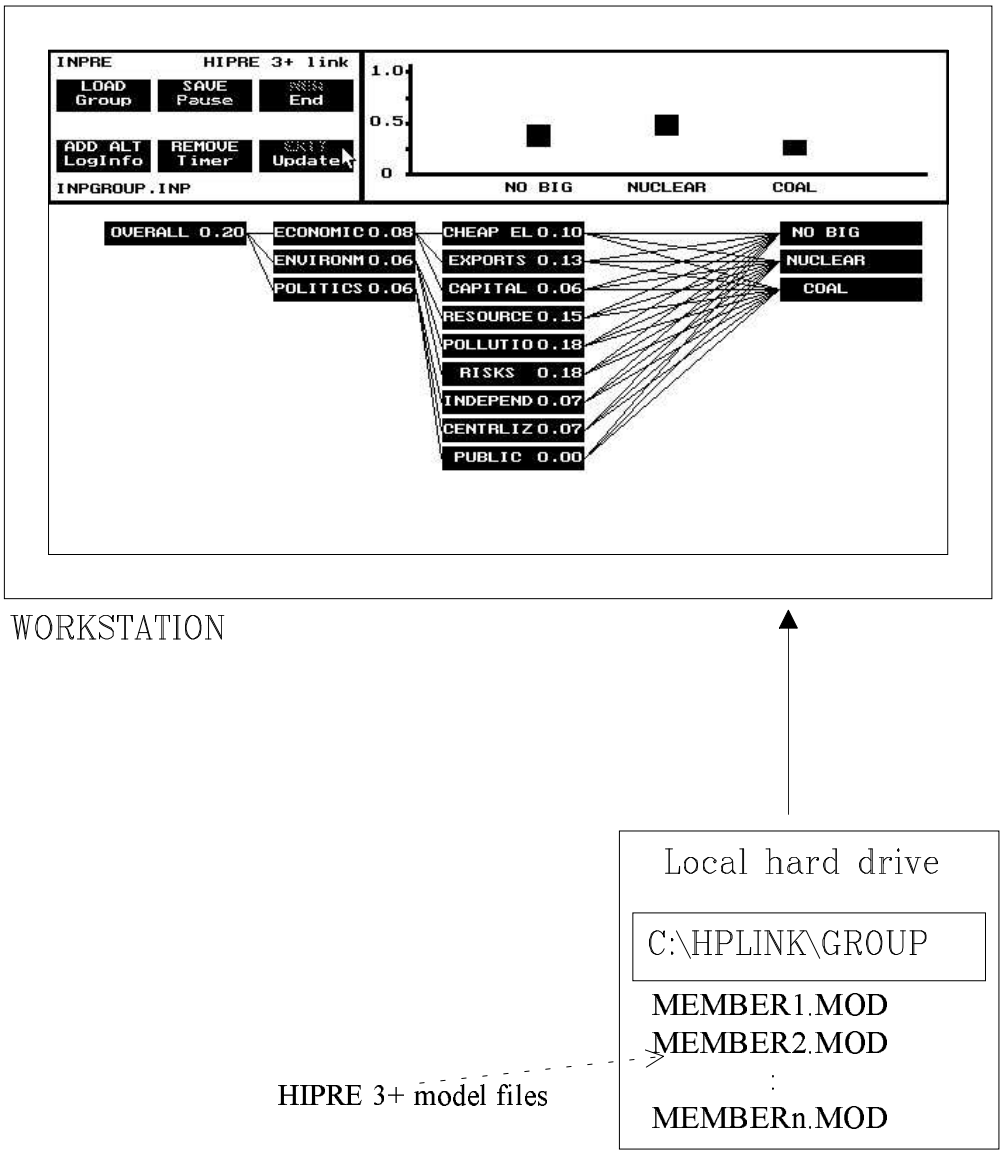

Figure: Group decision analysis with a single workstation.

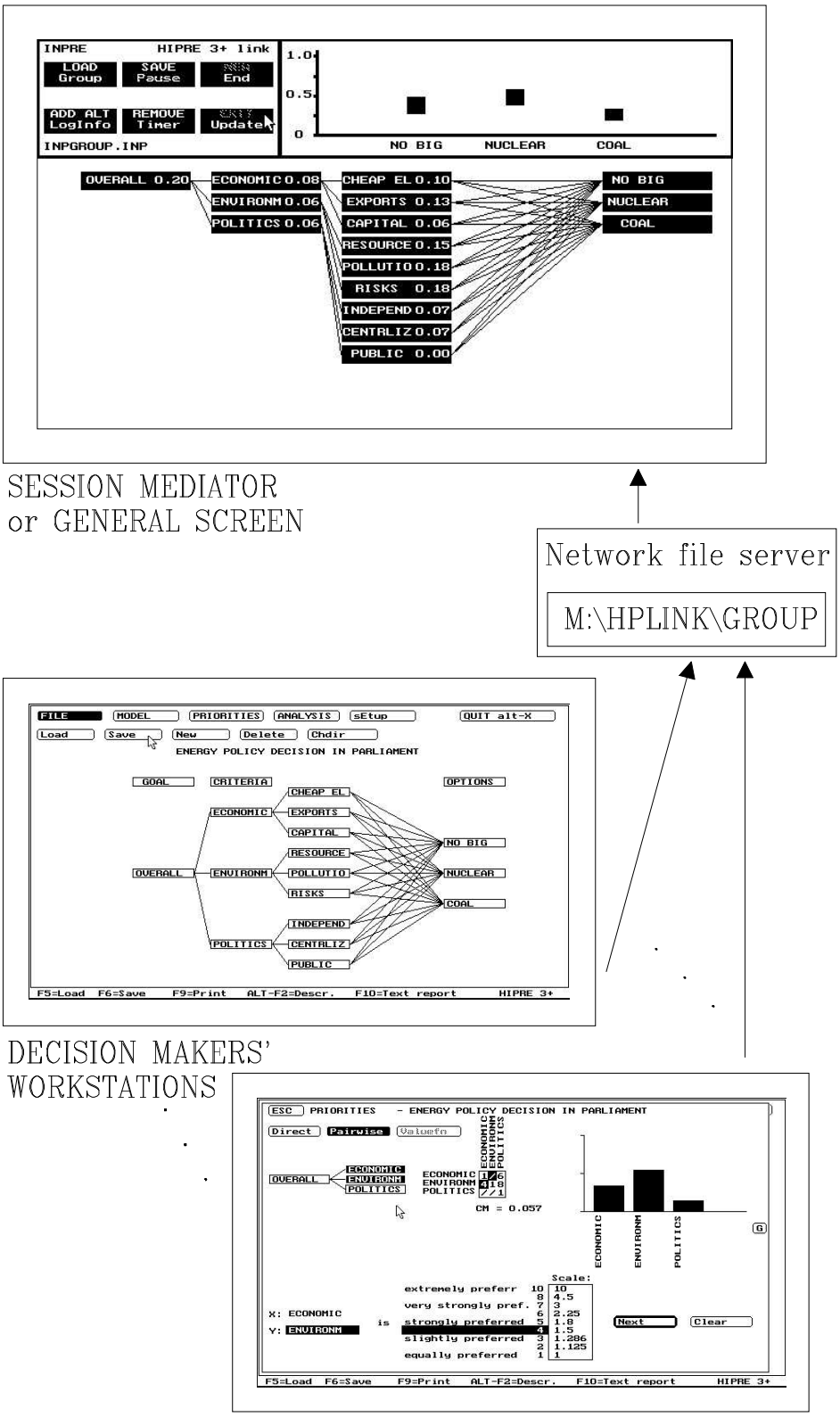

Figure: A group working through a local area PC-network.

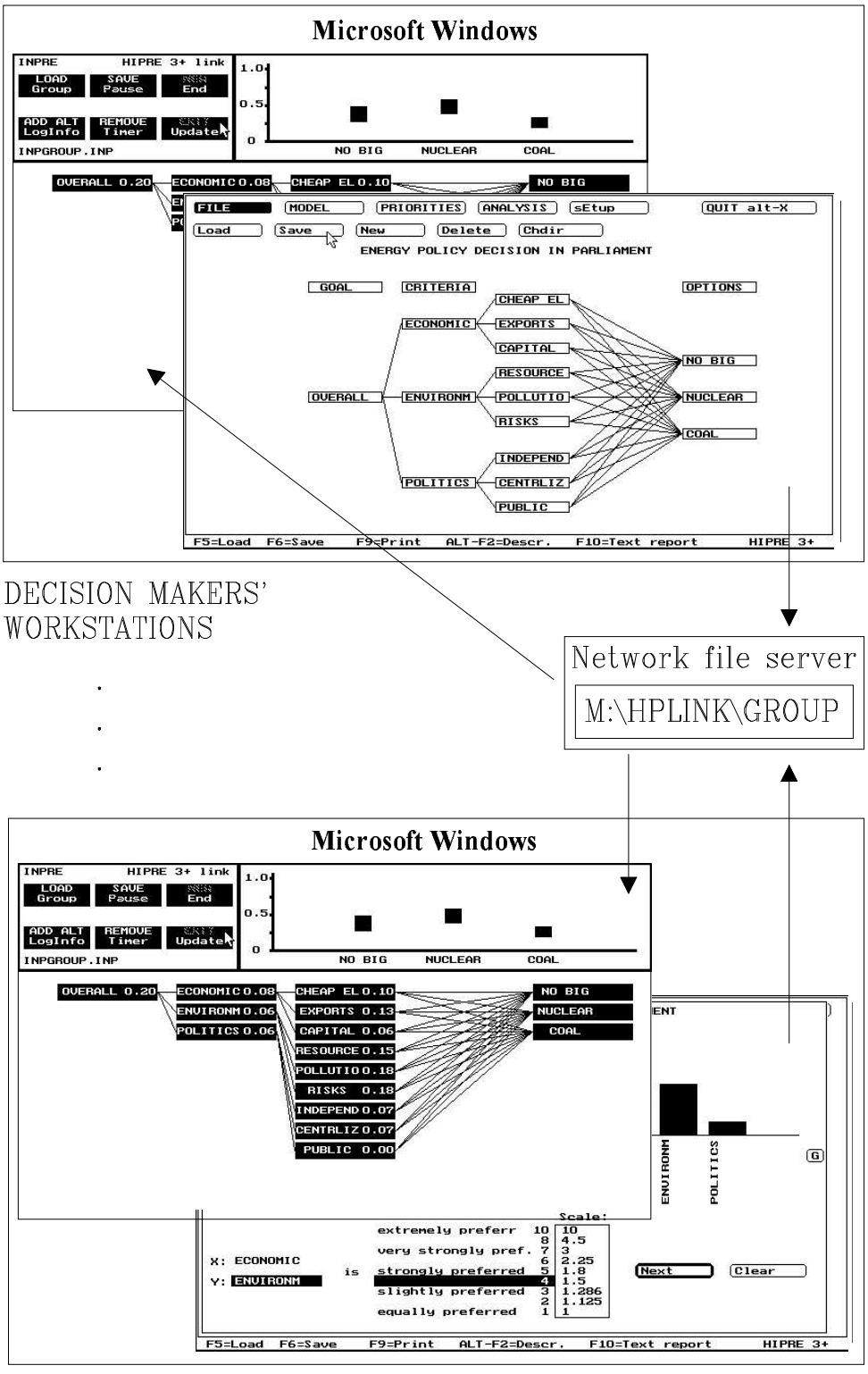

Figure: A Group working through a local area PC-network under Microsoft Windows.

1.3. The structure of this guide

This guide is organized in the following way. Chapter 'GETTING STARTED' gives instructions on how to install HPLINK, how to start it, how to give commands and how to exit the program. Chapter 'TUTORIAL' consists of examples on how to use the program. It takes you through the steps of a complete buying-a-car case. A full documentation of commands and error situations is found in chapter 'REFERENCE'.

Notations

Important words and terms are in *italics* when they appear for the first time. Commands are in **bold** text. Keys are enclosed in brackets (for example [Enter]). The mouse buttons are [Left Button] and [Right Button].

If the reader is requested to type something at the DOS-prompt, only the text after the prompt text should be typed. For example, when you are asked to type at the DOS-prompt in your HPLINK directory:

```
C:\HPLINK>hplink
```

you type 'hplink'.

1.4. Notes

All the basic operations and features of the original INPRE have been preserved in the INPRE v 2.0. All the original instructions are still available and unchanged. This guide focuses on the HIPRE 3+ Group Link features.

Special attention has to be paid to the correct use of the two mouse buttons [Left Button] and [Right Button] and the [TAB]-key. In HIPRE 3+ the right mouse button is the same as the [Esc]-button. However, you should note that in HPLINK this is not the case. The right mouse button is used for other purposes!

The INPRE software does not have direct printing options available, so you need to capture the screens on the Windows clipboard and print them from there.