DESKTOP: An Adaptable User Interface
Michael Herczeg, Heinz-Dieter Böcker

Research Group INFORM, Institut für Informatik, Herdweg 51, Universität Stuttgart

User interfaces have to bridge the gap between the intentions and abilities of humans and the internal structure and functionality of application systems on computers. As a result of the individuality of human skills, knowledge and experience it is impossible to build the interface for all kinds of users. A solution to this problem are adaptable user interfaces, that may be modified by the user herself/himself according to her/his needs or preferences (1).

In our research project we have constructed interfaces with deep and explicitly represented knowledge about visualization and interaction. Interaction objects (3) are views of structural (e.g. forms) or functional (e.g. menus) or both (e.g. communication sheets1) kinds of properties of application objects. They serve as application independent communication media between the user and the application system and are external representations of the application. By changing their appearance or behavior the user interface will change.

Instead of plugging them to application objects, interaction objects may be bound to other interaction objects or even themselves to shape their appearance or behavior as well. By this we have created a meta user interface that allows to modify the user interface.

This is the method how the DESKTOP system was build. DESKTOP demonstrates how an already existing, predefined iconic and window based user interface (2) may be changed substantially by the end user. Even new interaction objects may be created and for example be connected to applications like UNIX2 commands. All the modifications that usually have to be done by a programmer may be performed by users without any programming skills by the same interaction techniques they use when communicating with the application. The borderline between using and programming a system starts to vanish.

DESKTOP has been implemented in ObjTalk (4), an object-oriented extension of LISP.

References


1 a combination of forms, menus and icons
2 UNIX is a trademark of Bell Laboratories