PLUG-IN: Using Tcl/Tk for Plan-Based User Guidance

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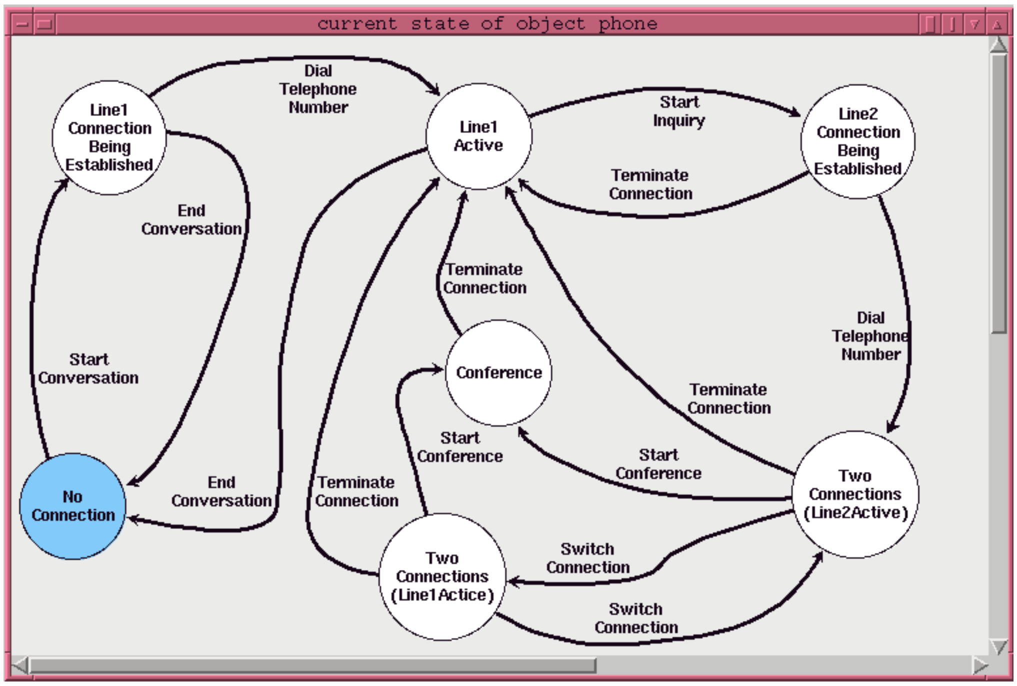

figure 1

the used interaction objects of the application's user interface

- generate the dynamical on-line help pages and animation sequences
- simulate the generated animation sequences on the user interface. For this purpose the extended Tcl/Tk interpreter AniSh (Animation Shell) is used. With the set of AniSh-specific commands it is possible to simulate and visualize user interactions in a graphical windowing environment like the X Window System.

In contrast to other approaches to user guidance [Feh93, Mor94, Thi94], PLUG-IN generates dynamical on-line help pages based on the STDs in HTML-format that can be inspected with a WWW browser like tkWWW or NCSA Mosaic. Each dynamical on-line help page is typically divided into four regions and contains:

- information about the current state of the application from the user's point of view
- information about the set of possible actions the user can perform in the current state
- for each of the possible actions: information about the necessary user interactions to perform the action. If the user selects the button with the light bulb icon beneath the displayed text (see example below), PLUG-IN simulates the described interactions on the user interface with an animation sequence and generates a new on-line help page afterwards.
- information about further documentation material, e.g. references to a hypertext version of the user manual of the application

As all operations the user can perform on the original user interface can also be triggered through the WWW browser, it can be regarded as an alternative user interface of the application. In contrast to the original user interface the goal of the WWW-based user interface is to guide the user during the work with the application. The information displayed helps the user to accomplish a given task. Furthermore, the user can learn how to interact with the original user interface through the means of the simulation capabilities of PLUG-IN.

3 An Example: Guiding the User of an ISDN Telephone Application

In our presentation we look at the user interface of an ISDN telephone application (see left side of figure 2) [Sie92] generated with our model-based BOSS-system [Sch94]. Depending on the current state of the application (in figure 1 this is the highlighted state “NoConnection” of the STD),

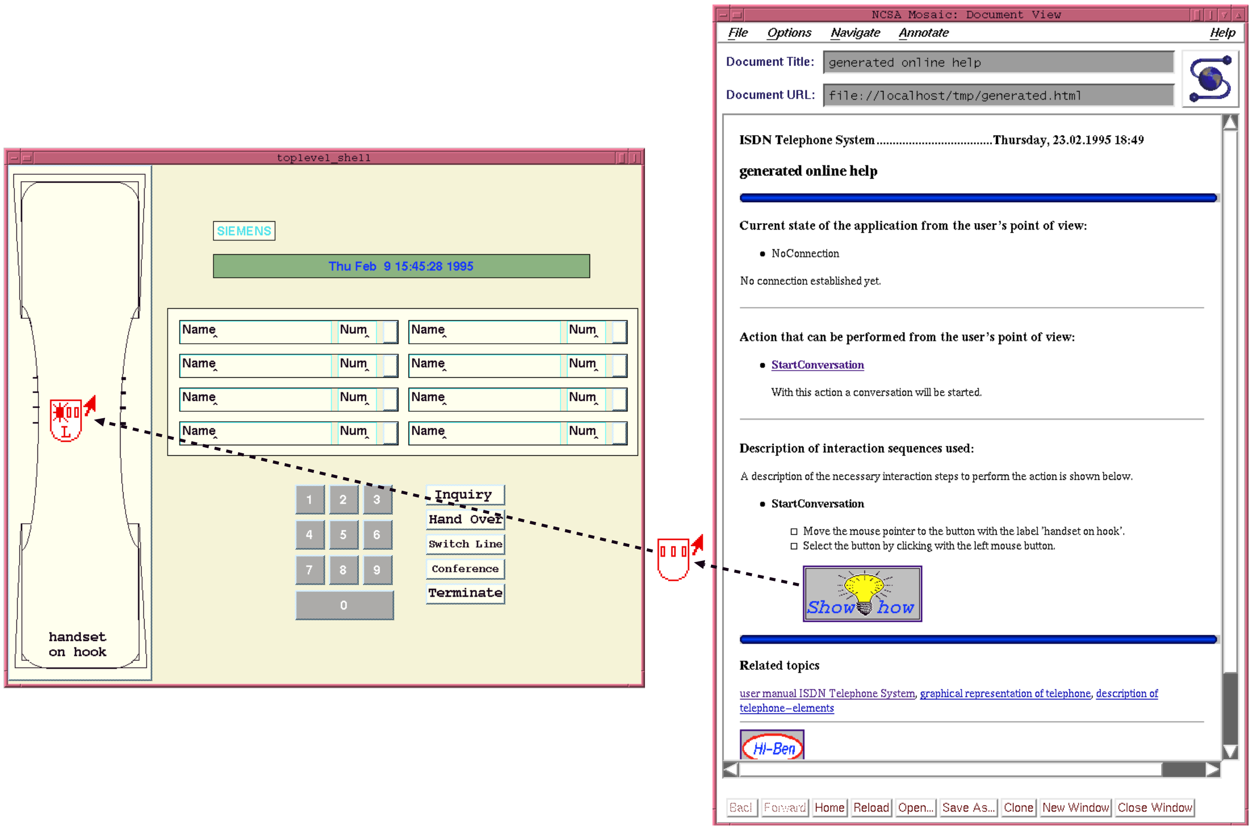

figure 2

PLUG-IN generates different on-line help pages. The generated on-line help page corresponding to the current state of the ISDN phone shown in figure 1 is displayed on the right side of figure 2. If the user selects the light bulb icon on the page, the described user interactions are simulated on the user interface. In this example PLUG-IN first changes the shape of the mouse pointer to provide visual feedback for the user, then moves the mouse pointer to the handset button on the user interface and finally selects the button by simulating a click with the left mouse button.

In the demonstration we will show how the user solves a complex task (e.g. establishes a conference while using the phone) with the dynamic support provided by PLUG-IN.

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