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THE INTERACTION BETWEEN HUMAN AND COMPUTER "THROUGH" DIALOGUE

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ABSTRACT
When looking at the interface, it is pretty easy to focus on visually separate parts (keys, buttons, menus, text fields), but the dynamics, the way the interface responds to user actions, they are less obvious. Development and design of dialogue, in the most of cases, focuses almost entirely on the selection and specification of appropriate sequence of actions and the corresponding changes in the state of the interface. However, it is not used normally and on a good level which includes details and deliberately ignores the semantic level interface.
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1. INTRODUCTION
There are few different ways which users can use for communication with the computer system. One extreme way is the packet input (batch input), in which the user provides all the information to the computer at once, letting the computer to do its job. This approach involves the interaction between the user and the computer, but does not support tasks that well. On the other hand, there are highly interactive input devices and paradigms, such as direct manipulation and application of virtual reality. In this case, the user is constantly providing instruction and receiving feedbacks. These are the types of interactive system which man uses and thinks about.

This paper will examine the communication between the user and the computer system - interactions. Attention will be dedicated to the interaction models, which make it possible to identify and assess the components of interaction, as well as the physical, social and organizational characteristics of the defining context. The interaction can be understood as a dialogue between the user and the computer. The choice of interface style can have a profound impact on the nature of this dialogue. This section will discuss the interaction through dialogs (dialog frameworks, dialogue box) and will pay attention to different effects that these dialogs have on the interaction.

2. MENUS

In the interface of the menu, all the options are available to the user, displayed on the screen and selected by using the mouse, the number keys or the alphabet. Since the options are visible, they are less demanding for the user, because they are relying on the recognition, not on the memory and recall. However, menus with the options should continue to be meaningful and logically grouped, in order to help the user in the recognition of desired command. The menus are often hierarchically arranged menus and the required features are not available on the upper layer of the hierarchy. The grouping and naming options menu are certain types of indicators for the user to find desired option. Such systems can be only textual, with a menu of options, where the mentioned options are presented as numbered items (Figure 1, left); the options can have the graphics component in which appears the menu, in the rectangular framework area, options can be selected by typing the first letter of the desired selection, or by entering the associated (connected) number, or by moving the cursor around the menu using the arrow keys. This is a limited form of complete WIMP system.

Figure 1. Menu and typical interface with forms to fill

3. DIALOGUES WITH INQUIRIES, QUESTIONS AND ANSWERS

The dialogue with questions and answers is a simple mechanism for providing inputs in a particular application domain. The user is asked a series of questions (mostly with answers yes or no, multiple choice, or codes) and the user is guided through interaction, step by step. An example of this would be a Web survey.

These interfaces are easy to learn and use, but they have limited functionality and power. As such, they are indeed appropriate for the limited fields (especially information systems) and for beginners and occasional users.

The dialogue with queries, on the other hand, is used to build queries using the programming languages which are specialized for queries (query languages), in order to retrieve data from the database. They use phrases in natural language style, but require a specific syntax, as well as knowledge of the database structure. Requests typically require from user to indicate the attribute or attributes that should search the database as well as desired attributes that should be displayed. It's simple, where there is only one attribute, but it becomes more complicated when the story includes several attributes. Most of languages specialized for query do not provide direct confirmation of what is required, and because of that the only validation that user has is the result of search. Effective usage of language specialized in questions, obviously, requires some experience. Specialized example of this is a Web browser.

4. FORMS TO FILL

Interfaces with forms to fill are primarily used for data entry, but they can be also very useful in applications to retrieve data. A screen that resembles paper form with fields to fill is presented to the user as well (Figure 1, right). Often shown forma is based on the actual form to which the user is familiar and which makes the interface easier to use. The user works through the form, filling in the appropriate values. In this way, the data included in the application is put on the exact places. Through the most of interfaces, with forms to fill, easy movement is enabled and it is allowed that some fields may remain empty. They also require a potential correction of facilities, if users change their minds, or if one makes a mistake about the values that belong to each field. Data entry through dialogue is useful primarily for data entry, and it is very easy for learning and using, especially for new users. However, assuming that it is a design that allows flexible entry interfaces with forms to fill are also suitable for more experienced users.

5. 3D INTERFACE AND DIALOGUES

Demand for three-dimensional effects in user's interfaces is more and more growing on the market, leading us to the appearance of three-dimensional interface. The most obvious example is a virtual reality (VR), but VR is only one part of 3D techniques available to the designer and / or to the designer interface.

The simplest technique is seen in the WIMP interface, where the elements such as buttons and bars, "get" their 3D look by shading, giving the form to the elements as if they were carved from stone. Due to the unwritten convention, such interfaces have a source of light in the upper right corner. When the shading is used rationally, chosen areas are easily recognizable and can be used to highlight the active field (Figure 2). Unfortunately, in some interfaces is apparent indiscriminate usage of sculptural effects (wherever it appears the text, the bounding box or menu), and because of that, sense of differentiation is disappering.
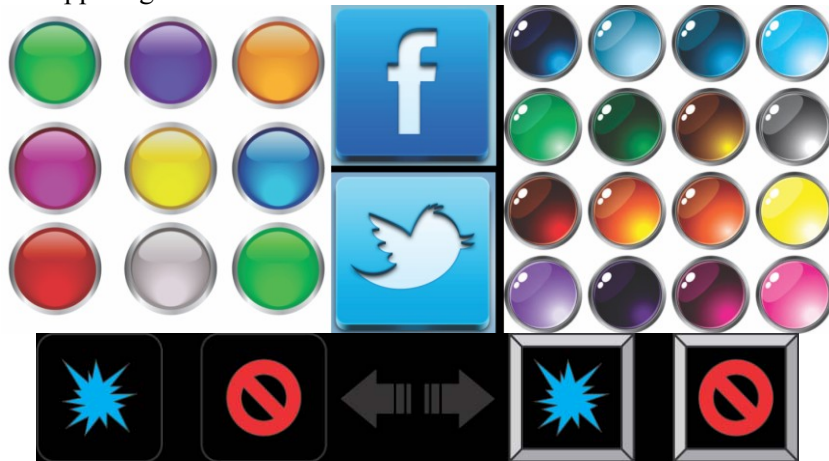

Figure 2. Highlighting the third dimension

More complex techniques use interfaces with 3D workspaces. Items shown in such systems are usually straight, but do appear in perspective, so the user can have a sense of depth and can "define" which object is closer and which further (Figure 3). One should pay attention to the fact that the size, light, and perspective provide a sense of distance. It is obvious as well, that further objects occupy less space on the screen. Three-dimensional workspaces can provide additional space, but in a more natural way.

Figure 3. Using a 3D leads to the additional space on the desktop

Finally, there are VR and information visualization systems, where the user can move around in a simulated 3D world. These mechanisms are overlapping with other styles of interaction, especially with the usage of sculptural elements in WIMP interfaces. However, there is a clear way (style) of the interaction for 3D interfaces, which "invites" the user to use certain abilities from the real world and have them translated into the electronic world. Beginners must learn that oval space with a word or picture in it, represents a button that should be pressed, as well as a 3D button that says "Push me".

Complete 3D environment will "invite" users to move within the virtual environment, and the user will do it, rather than watch it   as an observer.

6. POSITIONING AND "CLICK" ON THE BUTTON

In most of multimedia systems and Web browsers, almost all actions are undertaken by a single click of the mouse. For example, the user can point to the city on the map and when one clicks to open a window, the tourist information about the city is shown. By clicking the desired word, the definition of that word will be displayed as well. This possibility can provide us to point to distinctive icon and if we click on the same icon, some of the operations can be done.

This style of interface with the applied technique point-and-click is obviously closely related to the WIMP style. Clearly, there is an overlap in the use of keys (buttons), but it can also contain other elements of WIMP interface. However, the philosophy is simple and closely connected with the ideas of hypertext (such as HTML). Besides this fact, a style point-and-click is not "tied" to the interfaces that are based on the usage of the mouse, and it is also used extensively with the information systems with touch-sensitive displays. In this case, it is often combined with an interface which contains menus.

Style point-and-click is popularized by WWW (World Wide Web) sites, which includes all of the above types of point-and-click navigation mentioned above- highlighted words, maps and keys with icons.

7. INSTEAD OF CONCLUSION

When looking at the interface, it is easy to focus on visually separate parts (knobs, buttons, menus, text fields), but the dynamics, the way the interface responds to user actions, it is less obvious. Development and design of dialogue, in the most of cases, focuses almost entirely on the selection and specification of appropriate sequence of actions and the corresponding changes in the state of the interface. However, it is not used normally on a good level which includes detailes and deliberately ignores the „semantic" the degree of interface; for example, the validation of numerical information in the system is based on forms.

It should be mentioned that the interactivity presents the process of defining of characteristic of interactive system. This can be seen in many areas of HCI (Human Computer Interaction). For example, speech recognition is at a low level in order to stifle the transcription of the tape, but in a system for booking of airline tickets it is acceptable, as long as the system can rely on recognition of the answers such as (yes) and (no), and as long as the understanding of what was said can be reflected back and confirmed as well. Entrance to the system based on the speech is pretty difficult, but the interaction based on speech is easier. Also, great results are reached in the field of visualization of information, but the most exciting fact is that users can communicate with visualized information and objects in real time, to change the parameters and see the effect.

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