

UC Merced

Proceedings of the Annual Meeting of the Cognitive Science Society

Title

FLOABN

Permalink

<https://escholarship.org/uc/item/8kw3r2g0>

Journal

Proceedings of the Annual Meeting of the Cognitive Science Society, 19(0)

Author

Alterman, Richard

Publication Date

1997

Peer reviewed

FLOABN¹

Richard Alterman (alterman@cs.brandeis.edu)
Computer Science Department
Brandeis University
Waltham, MA 02254

FLOABN is a cognitive model of an individual that acquires skill in the usage of household and office devices in the everyday task environment (Alterman et. al., 1995).

The FLOABN model assumes two characteristics of the everyday task environment. First, the everyday task environment provides explicit information, added to the scene of activity by another, to guide the individual in the adaptation of his behavior. Second, some task environments have duration; they are semi-permanent. These two features of the task environment reveal some important characteristics in the psychology of the individual. When novelty occurs, expansion in the range of behavior of the individual is guided by a process of internalization of information added to the task environment by another. Because of the duration of certain home task environments, there is pay-off in organizing behavior in terms of the particulars of those environments.

The core of FLOABN is an adaptive planner. An adaptive planner borrows details from previous behaviors and adapts behavior by exploiting information available in the task environment. The first of the strategies is appropriate because, from the perspective of the individual, certain task environments tend to have duration; the second of the strategies is appropriate because “the other exists and she wants to help”.

Information provided by another to guide the individual's adaptive behavior is potentially available at any point in the interaction with a device. This information comes in several forms: instructions, labels, iconographs, affordances, standardization of parts and shapes, and the design of the device. FLOABN models in great detail the usage of one of these sources of information: textual instructions. The design of the instruction reading component of FLOABN recurred on the architecture of the overall system. Instruction reading was treated as an activity. The core of the reader was an adaptive planner that works pragmatically. As the reading activity unfolds, old reading plans are re-used, and adapted when necessary, using information explicitly provided in the external world (the text) for this very purpose. Over

time, if FLOABN continues to re-use the same text, it builds up a set of special purpose routines and maps for reading the text. FLOABN interactively interprets instructions in the context of its *existing* activity, reading only what is necessary, when it is necessary, navigating the text using the design and organization of the text that is provided by the author of the instructions.

What FLOABN retains in long term memory about a given kind of everyday activity is not an analytic reduction of the individual's activities of a certain type, but rather an enumeration. The task of memory is to build and use “maps” that merge the details of the individual's activity with specific features of the individual's everyday task environments. These “maps”, step-by-step, reference the conventions at work for the individual's normal routine occurring in its normal place of operation. The retained procedural facts about a given activity are organized by the structure of the activity itself. Reminding and storage of relevant facts is tied to the features of the external world that become available during the give-and-take of activities; reminding and storage occurs as action unfolds. All of these factors, in one way or another, depend on the assumption that in the everyday task environments certain combinations of tasks and environments have duration.

In any repeating task environment, the evolution of FLOABN's behavior is from that of “guest” to that of an “individual at home.” The movement from “guest” to “individual at home” is a movement from “unskilled” to “skilled” at the activity within the task environment; it converts what is distant and objective into the personal and subjective. Where the activity and task environment tend to repeat with some regularity for a given individual, the emergent integration of activity and environment is referred to as a “home task environment”. FLOABN's growing familiarity with home task environments is modeled in both the instruction reader and the memory system.

References

Alterman, R., Zito-Wolf, R., & Carpenter, T. (1995). Pragmatic Action. (Tech. Rep. CS-95-180). Waltham, MA: Brandeis University, Computer Science Department. To appear in *Cognitive Science*.

¹This work was supported in part by ONR (N00014-96-1-0440). Additional funding was provided by NSF (ISI-9634102).