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Smalltalk

TO: George Rhine

DATE: August 10, 1981

FROM: Larry Katz

SUBJECT: Xerox Learning Research Group Visit
Palo Alto Research Center (PARC)
July 10, 1981

On July 10, 1981, the following members of the DAD Systems Engineering & Technology Development Group visited the Xerox Learning Research Group (LRG) at Xerox' Palo Alto Research Center (PARC): George Rhine, Larry Katz, Paul McCullough, and Allen Wirfs-Brock. We were accompanied by Kit Bradley and John Providenza from MDP, and Rick LeFavre from Tek Labs.

The trip was organized as part of our Smalltalk project. The purpose of the trip was to see demonstrations of the Smalltalk system, and to share our experiences in implementing Smalltalk-80 with Xerox.

Our visit began with a roundtable discussion between our group and the LRG staff members involved in the Smalltalk-80 project. The second session was a demonstration by Adele Goldberg (LRG Manager) of Smalltalk-80 running on a Xerox Dorado, a very high performance personal computer. Our third session occurred during a lengthy lunch. The fourth session involved all of the Tek group, and Glenn Kraser, who is our primary liason with LRG. This session dealt principally with nitty-gritty technical issues in our implementation, and was undoubtedly boring for those not directly involved in our efforts. The final session was an opportunity for us to have "hands-on" access to several different Smalltalk systems.

A. Roundtable

This was the kick-off session, and began somewhat awkwardly. Basically, this session dealt with our general impressions and reactions to our involvement in the Smalltalk-80 project. The discussions covered areas such as the License Agreement between Tektronix and Xerox, the long term stability of both the Virtual Machine specification and the Virtual Image's contents, and the possibility of joint publication of our experiences concerning the dissemination of Smalltalk-80. A major part of this session consisted of us relating our experiences (problems) in implementing Smalltalk-80 to the LRG staff.

B. Demonstration

After a short tour of the LRG facility, we were given a demonstration of some of the capabilities of the Smalltalk-80 system. The demonstration presented a highly interactive system, with a great deal of emphasis on the use of the bit-mapped display and the mouse, for output and input, respectively.

The system is extensively menu-driven, with item selection being performed via the mouse. The "editor" is not a "language-oriented" editor, instead it is a general purpose tool. Its paradigm for manipulating the contents of an object is "cut and paste". It has about a half dozen commands, only one of which utilize the keyboard, and is very easy to learn and speedy to use.

Adele demonstrated the ease with which existing programs can be identified and modified using the system's facilities for "browsing" and editing. The program she chose to modify was a portion of a "service manual", which used animation to show the movement of paper through a Xerox copier. The modification was to make the paper flow backwards. This was easily accomplished, and we viewed the "reversed" animated images within a few minutes. N.B., almost the entire demonstration was run using the mouse as the only input device. The demonstration was quite impressive, almost to the point of being overwhelming.

C. Lunch

Lunch was a Chinese extravaganza for 20 at a nearby restaurant. During lunch, we had the opportunity to engage the LRG staff members in discussions of details of their efforts at LRG, and to compare them with our own. Some simplifications which had been made in the book's description of a Smalltalk-80 implementation were revealed, as well as some insights into alternative approaches.

D. Nitty Gritty

This session consisted of us asking questions, and Glenn Kraser answering them. The subject area was implementation details, and we covered all aspects of the Smalltalk system. We had intended for our questions to serve as a basis for discussions, but the LRG schedule unfortunately didn't allow for this. Instead, we got some of our specific questions answered, and did not get the hoped-for discussion.

E. Hands-on

The final session of the day was conducted upon several different personal computers, simultaneously. We were able to interact with several different Smalltalk systems, and to see for ourselves that the system we have been building really does work.

The system is extremely interactive, with very heavy use of the mouse. The user interface is easily explored in a trial-and-error fashion, with no need for "help" commands. The experiments we performed with the language itself were not as straightforward, mainly due to our inexperience at using Smalltalk as a programming language. We needed, and received, lots of coaching from Glenn.

Creating Smalltalk programs (editing), exploring the system (browsing), and executing programs, were all straightforward.

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Conclusion

The purpose of traveling to Xerox PARC was to see demonstrations of Smalltalk, and to share our experiences with Xerox. The trip was unquestionably worthwhile, and we accomplished our objectives.

In addition, we had the opportunity to experience true personal computers interconnected via Ethernet.

LK:jc

cc: Kit Bradley
Rick LeFaivre
Paul McCullough
John Providenza
Allen Wirfs-Brock