

DEMONSTRATING PROLOG ON APPLE II

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ABSTRACT

The purpose of this demonstration is to prove that the implementation on a micro computer of a complete version of an A.I. language, PROLOG in our case, is a to day reality.

We present the Apple II version of a complete, portable, Prolog system [1]. The system is implemented in Candide, a language specially designed to write the Prolog interpreter. This language produces code for a virtual machine Micromegas. It is important to notice that such a system could not be implemented on a micro computer without using a floppy-disk virtual memory. We have demonstrated in a previous paper that this approach yields reasonable performance with good reliability.

CARACTERISTICS OF THE IMPLEMENTATION

The system is implemented on an APPLE II, with :

- 48K of memory
- two 140 Kb floppy disks
- and the language card (+16 Kb, and UCSD Pascal) for a price of about \$2500.

The Micromegas emulator has been embedded into the UCSD Pascal system and consists in 10 pages of Pascal code (initialisations and I/O) plus 15 pages of 6502 machine language code (performing the instructions of the Micromegas machine). The Prolog interpreter occupies 12Kb of Micromegas code. The virtual memory system is implemented on the two floppy disks and the main memory paging area occupies 40 pages (of 256 bytes).

A complete version of the system was operational on May 81. Despite of some slowness it remains very usable, thanks to its improved interactivity. First experiments with the system show that having Prolog available on a micro computer is very stimulating. A lot of programs have been written with this new version. In particular, already existing Prolog programs have been translated such as a natural language communication system.

This version allows to develop Prolog program in nice conditions (with two floppies, you can have up to 50 pages Prolog programs). It is also very suitable for teaching.

THE DEMONSTRATION

The capabilities of the system are illustrated by a collection of small Prolog programs developed in our laboratory, particularly a Natural Language data base query system. We will try to run every Prolog program suggested by the participants, at the conference.

During the demonstration, we will be pleased to discuss the transportation of the system to other machines (large or micro) with interested people.

A fully documented version of the Apple II Prolog system will be delivered next September. A Micromegas implementation manual will be also available and, on January 1982, à Fortran or Pascal Micromegas'emulator will allow to run the system on (almost) all computers.

[1] Last steps towards on ultimate Prolog (in the same proceedings).