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 Subject: Sign on and Use of RED System
 Reference: RJ-1010
 To: File

This memo will describe the procedures for signing-on and using the RED System written in LISP and running under the Yorktown Research CP/CMS system. Knowledge of RJ-1010 ("Reduction Languages and Variable Free Programming" by John Backus) and superficial knowledge of CP/CMS is assumed.

I. Sign on and System Use

The following sequence of commands will sign a user on to the RED system. (It is assumed that the user has acquired Files RED, REDOPT, REDMOD, REDPRM, and REDDEL prior to sign on).

1. [user logon and password]
 * * *1
2. i cms
 * * *
3. {lisp red } red is the primitive red system
 {lisp redept} redept is the "optimized" version (condarg
 * * * is implemented as a primitive)
4. {redsys (1) } to get RED/1 interpreter
 {redsys (2) } to get RED/2 interpreter

At this point, when the keyboard unlocks, any legitimate RED expression may be entered for evaluation. The system will respond by typing out the value of the entered expression.

II. Expression Syntax and Character Set

Syntax accepted by the system is described in RJ-1010 pp. 45-47 and pp. 55-57. Exceptions to this are as follows.

¹Appropriate response from CP, CMS, or LISP. Next command should be entered when key board unlocks. If there is an error message, the previous command should be reentered.

- a. Strings are not allowed
- b. $\square$ is denoted by the character ?

the shorthand notation, given on p. 70 of RJ-1010, is not allowed by this system.

III. Functions available

- a. Primitive operators on pp. 61-64, except numbers 14 and 15. (Encode and Decode)
- b. Operators on pp. 77-79. (The symbol ° such as in °1 is typed as ! and any operator beginning with a numeric must be preceded by a !, eg. !2F).
- c. The following additional operators.
 - 1. I defined as $\langle I X \rangle \rightarrow X$
 - 2. K defined as $\langle \langle K X \rangle Y \rangle \rightarrow X$
 - 3. S defined as $\langle \langle \langle S X \rangle Y \rangle Z \rangle \rightarrow \langle \langle X Z \rangle \langle Y Z \rangle \rangle$
 - 4. SS defined as $\langle \langle \langle SS X Y \rangle Z \rangle \rightarrow \langle \langle X Z \rangle \langle Y Z \rangle \rangle$
 - 5. \$FIN defined as $\langle \$FIN X \rangle \rightarrow$ terminates REDSYS. This returns the user to the LISP interpreter.
 - 6. \$DEF defined as $\langle \$DEF (X Y) \rangle \rightarrow$ to enter (X Y) into V. The value of this application is X.

IV. Errors

If an error occurs, the system prints a message and exits. To recover, type **V** and reenter redsys(1) or redsys(2) as in step 4 of sign on. Some errors, such as exceeding storage, may cause a LISP error message. These must be cancelled by typing **V** before restarting the system. To interrupt a running program, hit ATTN twice and type ZZ or use the CMS commands KX or KT.

Any function defined by \$DEF before an error occurs is available after restart unless LISP is reentered from CMS (Step 3).

V. Saving the System

A copy of the system, with new entries in V, may be saved by entering the following LISP command after execution \$FIN:

filelisp (name SOSTAP P1)

Where name is a user supplied name for the saved system. To use a saved system the name name should be used in place of red or redopt in the LISP command (step 3).



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PDS/cah