

File created: 16-May-90 14:44:40 {DSK}<usr>local>lde>lispcore>sources>CMLSTEP.;2

changes to: (IL:VARS IL:CMLSTEPCOMS)

previous date: 10-Dec-87 15:11:29 {DSK}<usr>local>lde>lispcore>sources>CMLSTEP.;1

Read Table: XCL

Package: LISP

Format: XCCS

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(IL:RPAQQ **IL:CMLSTEPCOMS**
(

;;; CMLSTEP -- Single Stepper STEP

```
(IL:FUNCTIONS STEP)
(IL:FUNCTIONS STEP-COMMAND STEP-EVAL STEP-FORM STOP-STEPPING STEP-PRINT STEP-PRINT-VALUES)
(IL:VARIABLES *STEP-IO* *STEP-INDENTATION-INCREMENT* *STEP-INDENTATION-LEVEL* *STEP-PRINT-LEVEL*
  *STEP-STATE* *STEP-MAX-INDENTATION* *STEP-PRINT-LENGTH*)
(IL:PROP (IL:FILETYPE IL:MAKEFILE-ENVIRONMENT)
  IL:CMLSTEP)
(IL:FUNCTIONS STEP-SLEEP)
(IL:DECLARE\ IL:DONTEVAL@LOAD IL:DOEVAL@COMPILE IL:DONTCOPY IL:COMPILEVARS (IL:ADDVARS (IL:NLAMA)
  (IL:NLAML)
  (IL:LAMA))))
```

;;; CMLSTEP -- Single Stepper STEP

(DEFMACRO **STEP** (FORM)

```
"Evaluate FORM interactively"
\ (LET ((*EVALHOOK* #'STEP-COMMAND)
  (*STEP-STATE* T)
  (*STEP-INDENTATION-LEVEL* 0)
  (*STEP-IO* *QUERY-IO*))
  ,FORM)
```

(DEFUN **STEP-COMMAND** (FORM ENVIRONMENT)

"This is the *EVALHOOK* when stepping. It prints the form, and then reads a command. The commands are single characters from the terminal. If the stepper has subsequently been turned off, do the equivalent of the s command without printing."

```
(COND
  ((NOT *STEP-STATE*)
   (EVAL FORM ENVIRONMENT)
   ; If aborted, just eval it.
  )
  ((NOT (OR (EQ *STEP-STATE* T)
    (AND (CONSP FORM)
      (MEMBER (CAR FORM)
        *STEP-STATE* :TEST 'EQ))))
   (EVALHOOK FORM #'STEP-COMMAND NIL ENVIRONMENT))
   ; Don't step this form, but keep on looking.
  )
  (T
   ; Otherwise, bind indent level, print form, and enter command
   ; loop.
   (COND
     ((OR (SYMBOLP FORM)
      (CONSTANTP FORM))
      ; Handles quote, not function.
     )
     (STEP-PRINT FORM)
     (LET ((VALUE (EVAL FORM ENVIRONMENT))
      (STEP-PRINT-VALUES (LIST VALUE)
      VALUE))
      (T (STEP-PRINT FORM)
        (ECASE (IL:ASKUSER NIL NIL " : " ' ((IL:\ "Step" IL:EXPLAINSTRING "<space> -- Step")
          (IL:N "ext" IL:EXPAINSTRING "Next - Evaluate this expression
            without stepping")
          (IL:F "inish" IL:EXPAINSTRING "Finish - complete evaluation
            without the stepper")
          (IL:D "ebugger")
          (IL:^ " abort"))))
          ; Space: step thru the evaluation of this form
          (IL:\
            (STEP-FORM FORM ENVIRONMENT))
          (IL:N (STEP-EVAL FORM ENVIRONMENT))
          (IL:F
            (STOP-STEPPING)
            (EVAL FORM ENVIRONMENT))
          (IL:D
            ; Enter the debugger with this form, but then continue stepping
            ; afterward.
            (XCL:DEBUGGER :FORM FORM :ENVIRONMENT ENVIRONMENT :CONDITION (XCL:MAKE-CONDITION
              'SI::BREAKPOINT :FUNCTION
              FORM))
            (STEP-COMMAND FORM ENVIRONMENT))
          (IL:^ (IL:ERROR!))))))
```

```

(DEFUN STEP-EVAL (FORM ENVIRONMENT)
  "Evaluate this form (without stepping) and print values"
  (LET ((RESULTS (MULTIPLE-VALUE-LIST (EVAL FORM ENVIRONMENT))))
    (STEP-PRINT-VALUES RESULTS)
    (VALUES-LIST RESULTS)))

(DEFUN STEP-FORM (FORM ENVIRONMENT)
  "Evaluate this form by stepping and print values."
  (LET ((RESULTS (LET ((*STEP-INDENTATION-LEVEL* (+ *STEP-INDENTATION-INCREMENT* *STEP-INDENTATION-LEVEL*)))
    (MULTIPLE-VALUE-LIST (EVALHOOK FORM #'STEP-COMMAND NIL ENVIRONMENT))))))
    (STEP-PRINT-VALUES RESULTS)
    (VALUES-LIST RESULTS)))

(DEFUN STOP-STEPPING ()
  (SETQ *STEP-STATE* NIL)
  (SETQ *EVALHOOK* NIL))

(DEFUN STEP-PRINT (FORM)
  "Print form according to the current indentation level, and according to *STEP-PRINT-LEVEL* and
  *STEP-PRINT-LENGTH*"
  (LET ((*PRINT-LEVEL* *STEP-PRINT-LEVEL*)
    (*PRINT-LENGTH* *STEP-PRINT-LENGTH*))
    (FORMAT *STEP-IO* "~&~vT~S " (MIN *STEP-INDENTATION-LEVEL* *STEP-MAX-INDENTATION*)
    FORM)))

(DEFUN STEP-PRINT-VALUES (VALUE-LIST)
  "PRINT-VALUES is called to print a list of values which were returned from an evaluation."
  (WHEN VALUE-LIST
    (LET ((*PRINT-LEVEL* *STEP-PRINT-LEVEL*)
      (*PRINT-LENGTH* *STEP-PRINT-LENGTH*))
      (DOLIST (VALUE VALUE-LIST)
        (FORMAT *STEP-IO* "~&~vT= ~S " (MIN *STEP-INDENTATION-LEVEL* *STEP-MAX-INDENTATION*)
        VALUE))))
    (TERPRI *STEP-IO*))

(DEFVAR *STEP-IO* NIL
  "Stream to which step I/O is done, bound by CL:STEP.")

(DEFVAR *STEP-INDENTATION-INCREMENT* 2
  "Number of spaces to increase indenting.")

(DEFVAR *STEP-INDENTATION-LEVEL* 0)

(DEFVAR *STEP-PRINT-LEVEL* 2
  "Local value")

(DEFVAR *STEP-STATE* NIL
  "EG, enabled")

(DEFVAR *STEP-MAX-INDENTATION* 40)

(DEFVAR *STEP-PRINT-LENGTH* 5
  "Local value")

(IL:PUTPROPS IL:CMLSTEP IL:FILETYPE IL:COMPILE-FILE)
(IL:PUTPROPS IL:CMLSTEP IL:MAKEFILE-ENVIRONMENT (:READTABLE "XCL" :PACKAGE "LISP"))

(DEFUN STEP-SLEEP (FUNCTIONS)
  "Sleep until the given functions are reached."
  (WHEN (NULL FUNCTIONS)
    (SETQ FUNCTIONS 0))
  (SETQ *STEP-STATE* FUNCTIONS)
  (SETQ *EVALHOOK* #'STEP-COMMAND)
  (SETQ *STEP-INDENTATION-LEVEL* 0))

(IL:DECLARE\ : IL:DONTEVAL@LOAD IL:DOEVAL@COMPILE IL:DONTCOPY IL:COMPILEVAR)
(IL:ADDTOVAR IL:NLAMA )
(IL:ADDTOVAR IL:NLAML )

```

;;; This is an interesting bit of functionality for step that needs a better interface. It currently exists but will not be documented for the release.

{MEDLEY}<sources>CMLSTEP.;1

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(IL:ADDOVAR **IL:LAMA**)
)

(IL:PUTPROPS **IL:CMLSTEP IL:COPYRIGHT** ("Venue & Xerox Corporation" 1986 1987 1990))

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STEP-IO2 *STEP-PRINT-LEVEL*2

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