```
;;
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(RPAQQ CMLREADCOMS
        [ (COMS    ;; Misc Common Lisp reader functions

                (FNS CL:COPY-READTABLE)
                (FNS CL:READ-LINE CL:READ-CHAR CL:UNREAD-CHAR CL:PEEK-CHAR CL:LISTEN CL:READ-CHAR-NO-HANG
                     CL:CLEAR-INPUT CL:READ-FROM-STRING CL:READ-BYTE CL:WRITE-BYTE)
                                                        ; must turn off packed version of CLISP infix
                (VARS [CLISPCHARS (LDIFFERENCE CLISPCHARS '(- *]
                      (CLISPCHARRAY (MAKEBITTABLE CLISPCHARS))
                      (DWIMINMACROSFLG))
                (VARIABLES *READ-DEFAULT-FLOAT-FORMAT*)
                (GLOBALVARS CMLRDTBL READ-LINE-RDTBL))
        [COMS    ;; Crude means to aid reading and printing things in same reader environment.  There are some fns and an INITRECORDS for this on
                 ;; ATBL to get it early in the loadup

                (RECORDS READER-ENVIRONMENT)
                (FUNCTIONS WITH-READER-ENVIRONMENT)
                (ADDVARS (SYSSPECVARS *PACKAGE* *READTABLE* *READ-BASE* *PRINT-BASE*))
                (PROP INFO WITH-READER-ENVIRONMENT)
                (GLOBALVARS *COMMON-LISP-READ-ENVIRONMENT*)
                (INITVARS (*COMMON-LISP-READ-ENVIRONMENT* (create READER-ENVIRONMENT REPACKAGE _ (CL:FIND-PACKAGE
                                                                                                   "USER")
                                                        REREADTABLE _ CMLRDTBL REBASE _ 10]
        (PROP FILETYPE CMLREAD)
        (DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVARS
                (ADDVARS (NLAMA)
                        (NLAML)
                        (LAMA CL:READ-BYTE CL:READ-FROM-STRING CL:CLEAR-INPUT CL:READ-CHAR-NO-HANG CL:PEEK-CHAR
                              CL:UNREAD-CHAR CL:READ-CHAR CL:READ-LINE CL:COPY-READTABLE])
```

;; Misc Common Lisp reader functions

```
(DEFINEQ
```

(CL:COPY-READTABLE

```
  [CL:LAMBDA (&OPTIONAL (FROM-READTABLE *READTABLE*)
                    TO-READTABLE)                       (* bvm%: "13-Oct-86 15:21")
                                                        ; If FROM-READTABLE is NIL, then a copy of a standard
                                                        ; Common Lisp readtable is made.
        (if (AND (NULL FROM-READTABLE)
                 (NULL TO-READTABLE))
            then                                        ; just make a brand new one
                (CMLRDTBL)
          else (SETQ FROM-READTABLE (\DTEST (OR FROM-READTABLE (CMLRDTBL))
                                            'READTABLEP))
                (if TO-READTABLE
                    then (RESETREADTABLE (\DTEST TO-READTABLE 'READTABLEP)
                                FROM-READTABLE)
                        TO-READTABLE
                  else (COPYREADTABLE FROM-READTABLE])

)

(DEFINEQ
```

(CL:READ-LINE

```
  [CL:LAMBDA (&OPTIONAL STREAM (EOF-ERRORP T)
                    EOF-VALUE RECURSIVE-P)              ; Edited 31-Mar-87 18:36 by bvm:

        ;; Returns a line of text read from the STREAM as a string, discarding the newline character.

        (CL:SETQ STREAM (\GETSTREAM STREAM 'INPUT))
        (if (AND (NULL EOF-ERRORP)
                 (NULL RECURSIVE-P)
                 (\EOFP STREAM))
            then EOF-VALUE
          else (LET ((RESULT (RSTRING STREAM READ-LINE-RDTBL)))
                    (if (\EOFP STREAM)
                        then (CL:VALUES RESULT T)
                      else                              ; consume the eol
                            (READCCODE STREAM)
                            (CL:VALUES RESULT NIL])
```

(**CL:READ-CHAR**
  [CL:LAMBDA (&OPTIONAL (STREAM *STANDARD-INPUT*)
                        (EOF-ERRORP T)
                        EOF-VALUE RECURSIVE-P)   ; Edited 14-Dec-86 20:41 by bvm:

        ;; Inputs a character from STREAM and returns it.

        (LET [(STREAM (\GETSTREAM STREAM 'INPUT]
             (COND
                ((AND (NOT EOF-ERRORP)
                      (NOT RECURSIVE-P)
                      (\EOFP STREAM))
                 EOF-VALUE)
                (T (CL:CODE-CHAR (READCCODE STREAM]

(**CL:UNREAD-CHAR**
  (CL:LAMBDA (CHARACTER &OPTIONAL (INPUT-STREAM *STANDARD-INPUT*))
                                                                                 (* bvm%: "13-Oct-86 15:44")

        ;; Puts the CHARACTER back on the front of the input STREAM. According to the manual, 'One may apply UNREAD-CHAR only to the
        ;; character most recently read from INPUT-STREAM.'

        (\BACKCHAR (\GETSTREAM INPUT-STREAM 'INPUT))
        NIL))

(**CL:PEEK-CHAR**
  [CL:LAMBDA (&OPTIONAL (PEEK-TYPE NIL)
                        (STREAM *STANDARD-INPUT*)
                        (EOF-ERRORP T)
                        EOF-VALUE RECURSIVE-P)   ; Edited 14-Apr-87 14:39 by bvm:

        ;; Peeks at the next character in the input Stream. See manual for details.

        (**DECLARE** (IGNORE RECURSIVE-P))
        (LET ((STREAM (\GETSTREAM STREAM 'INPUT))
              (\RefillBufferFn '\PEEKREFILL)
              CL:CHAR)
             (**DECLARE** (CL:SPECIAL \RefillBufferFn))
             (SELECTQ PEEK-TYPE
                (NIL   ; standard case--return next char. \peekccode to terminal
                                                                                ; requires the binding of \RefillBufferFn above
                  (**if** (SETQ CL:CHAR (\PEEKCCODE STREAM (NULL EOF-ERRORP)))
                      then (CL:CODE-CHAR CL:CHAR)
                    else EOF-VALUE))
                (T   ; skip whitespace before peeking
                  (**if** (SETQ CL:CHAR (SKIPSEPRCODES STREAM))
                      then (CL:CODE-CHAR CL:CHAR)
                    elseif EOF-ERRORP
                      then (\EOF.ACTION STREAM)
                    else EOF-VALUE))
                (**if** (CL:CHARACTERP PEEK-TYPE)
                    then (LET ((DESIREDCHAR (CL:CHAR-CODE PEEK-TYPE))
                                (NOERROR (NULL EOF-ERRORP)))
                              (**until** (EQ (SETQ CL:CHAR (\PEEKCCODE STREAM NOERROR))
                                            DESIREDCHAR)
                                  do (**if** (NULL CL:CHAR)
                                            then (RETURN EOF-VALUE))
                                       (READCCODE STREAM)
                                  finally (RETURN PEEK-TYPE)))
                  else (\ILLEGAL.ARG PEEK-TYPE])

(**CL:LISTEN**
  (CL:LAMBDA (&OPTIONAL STREAM)   ; Edited 14-Apr-87 16:49 by bvm:

        ;; Returns T if a character is available on the given STREAM

        (READP (\GETSTREAM STREAM 'INPUT)
               T)))

(**CL:READ-CHAR-NO-HANG**
  (CL:LAMBDA (&OPTIONAL STREAM (EOF-ERRORP T)
                        EOF-VALUE RECURSIVE-P)   ; Edited 14-Apr-87 16:40 by bvm:

        ;; Returns the next character from the STREAM if one is available, or NIL. However, if STREAM is at eof, do eof handling.

        (COND
           ((READP STREAM T)   ; there is input, get it
            (**CL:READ-CHAR** STREAM EOF-ERRORP EOF-VALUE RECURSIVE-P))
           ((NOT (EOFP STREAM))   ; there could be more input, so don't wait, return NIL
            NIL)
           (EOF-ERRORP (\EOF.ACTION STREAM))
           (T EOF-VALUE))))

(**CL:CLEAR-INPUT**
  [CL:LAMBDA (&OPTIONAL (STREAM *STANDARD-INPUT*))   (* bvm%: "13-Oct-86 15:46")

```
        ;; Clears any buffered input associated with the Stream.

        (CLEARBUF (\GETSTREAM STREAM 'INPUT])
```

(**CL:READ-FROM-STRING**

```
   [CL:LAMBDA (STRING &OPTIONAL EOF-ERROR-P EOF-VALUE &KEY START END PRESERVE-WHITESPACE)
                                                    ; Edited  8-Jun-90 14:15 by ymasuda
        (LET [(STREAM (OPENSTRINGSTREAM (COND
                                         [END (SUBSTRING STRING 1 (IMIN END (NCHARS STRING]
                                         (T (MKSTRING STRING]
              (COND
                (START (SETFILEPTR STREAM START)))
              (CL:VALUES (CL:IF PRESERVE-WHITESPACE
                                (CL:READ-PRESERVING-WHITESPACE STREAM EOF-ERROR-P EOF-VALUE)
                                (CL:READ STREAM EOF-ERROR-P EOF-VALUE))
                    (\GETFILEPTR STREAM])
```

(**CL:READ-BYTE**

```
   [CL:LAMBDA (BINARY-INPUT-STREAM &OPTIONAL (EOF-ERRORP T)
                   EOF-VALUE)                             (* bvm%: "13-Oct-86 15:49")
        ;; Returns the next byte of the BINARY-INPUT-STREAM

        (LET [(STREAM (\GETSTREAM BINARY-INPUT-STREAM 'INPUT]
            (CL:IF (AND (NOT EOF-ERRORP)
                        (\EOFP STREAM))
                 EOF-VALUE
                 (\BIN STREAM))])
```

(**CL:WRITE-BYTE**

```
   (CL:LAMBDA (INTEGER BINARY-OUTPUT-STREAM)              (* bvm%: "13-Oct-86 15:49")
        ;; Outputs the INTEGER to the binary BINARY-OUTPUT-STREAM

        (BOUT BINARY-OUTPUT-STREAM INTEGER)
        INTEGER))
)
```

;; must turn off packed version of CLISP infix

(RPAQ **CLISPCHARS** (LDIFFERENCE CLISPCHARS '(- *)))

(RPAQ **CLISPCHARRAY** (MAKEBITTABLE CLISPCHARS))

(RPAQQ **DWIMINMACROSFLG** NIL)

(CL:DEFVAR *READ-DEFAULT-FLOAT-FORMAT* 'CL:SINGLE-FLOAT)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS CMLRDTBL READ-LINE-RDTBL)
)

;; Crude means to aid reading and printing things in same reader environment. There are some fns and an INITRECORDS for this on ATBL to get it
;; early in the loadup

(DECLARE%: EVAL@COMPILE

(DATATYPE READER-ENVIRONMENT (REPACKAGE REREADTABLE REBASE RESPEC))
)

(/DECLAREDATATYPE 'READER-ENVIRONMENT '(POINTER POINTER POINTER POINTER)
        ;; ---field descriptor list elided by lister---
        '8)

(DEFMACRO **WITH-READER-ENVIRONMENT** (ENV . BODY)
   `((CL:LAMBDA (E)
          (LET ((*PACKAGE* (**ffetch** (READER-ENVIRONMENT REPACKAGE) **of** E))
                (*READTABLE* (**ffetch** (READER-ENVIRONMENT REREADTABLE) **of** E))
                (*READ-BASE* (**ffetch** (READER-ENVIRONMENT REBASE) **of** E))
                (*PRINT-BASE* (**ffetch** (READER-ENVIRONMENT REBASE) **of** E)))
              ,@BODY))
      (\DTEST ,ENV 'READER-ENVIRONMENT)))

(ADDTOVAR **SYSSPECVARS** *PACKAGE* *READTABLE* *READ-BASE* *PRINT-BASE*)

(PUTPROPS **WITH-READER-ENVIRONMENT INFO** EVAL)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS *COMMON-LISP-READ-ENVIRONMENT*)

```
)

(RPAQ? *COMMON-LISP-READ-ENVIRONMENT* (create READER-ENVIRONMENT REPACKAGE _ (CL:FIND-PACKAGE "USER")
                                              REREADTABLE _ CMLRDTBL REBASE _ 10))

(PUTPROPS CMLREAD FILETYPE CL:COMPILE-FILE)

(DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVARS

(ADDTOVAR NLAMA )

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(ADDTOVAR LAMA CL:READ-BYTE CL:READ-FROM-STRING CL:CLEAR-INPUT CL:READ-CHAR-NO-HANG CL:PEEK-CHAR CL:UNREAD-CHAR
                CL:READ-CHAR CL:READ-LINE CL:COPY-READTABLE)
)

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             (FNS CL:COPY-READTABLE)
             (FNS CL:READ-LINE CL:READ-CHAR CL:UNREAD-CHAR CL:PEEK-CHAR CL:LISTEN CL:READ-CHAR-NO-HANG
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                                                                                               "USER")
                                                REREADTABLE _ CMLRDTBL REBASE _ 10]
        (PROP FILETYPE CMLREAD)
        (DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVARS
             (ADDVARS (NLAMA)
                  (NLAML)
                  (LAMA CL:WRITE-BYTE CL:READ-BYTE CL:READ-FROM-STRING CL:CLEAR-INPUT CL:READ-CHAR-NO-HANG
                       CL:LISTEN CL:PEEK-CHAR CL:UNREAD-CHAR CL:READ-CHAR CL:READ-LINE CL:COPY-READTABLE])

(DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVARS

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(ADDTOVAR LAMA CL:WRITE-BYTE CL:READ-BYTE CL:READ-FROM-STRING CL:CLEAR-INPUT CL:READ-CHAR-NO-HANG CL:LISTEN
                CL:PEEK-CHAR CL:UNREAD-CHAR CL:READ-CHAR CL:READ-LINE CL:COPY-READTABLE)
)

(PUTPROPS CMLREAD COPYRIGHT ("Venue & Xerox Corporation" 1985 1986 1987 1988 1990))
```

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