

File created: 7-Jan-91 17:36:04 {DSK}<usr>bane>LISP>TEXTMODULES.;3

changes to: (IL:FUNCTIONS INSTALL-READ-MACRO DEFPRESENTATION PRINT-HASH-BASED-NUMBER READ-HASH-BASED-NUMBER
TRANSLATE-HASH-BASED-NUMBER HANDLE-READ-MACROS PRINT-HASH-STAR READ-HASH-STAR
TRANSLATE-HASH-STAR PRINT-READABLE-READ-TIME-CONDITIONAL
PRINT-UNREADABLE-READ-TIME-CONDITIONAL TRANSLATE-READ-TIME-CONDITIONAL
READ-READ-TIME-CONDITIONAL)
(IL:PRESENTATIONS HASH-BASED-NUMBER HASH-STAR HASH-IL-READABLE HASH-IL-UNREADABLE)
(IL:VARS IL:TEXTMODULESCOMS)
(IL:VARIABLES *SEdit-READ-MACROS* *CONDITIONAL-KEYWORDS*)
(IL:STRUCTURES READ-TIME-CONDITIONAL)

previous date: 4-Dec-90 00:36:08 {DSK}<usr>bane>LISP>TEXTMODULES.;2

Read Table: XCL

Package: TEXTMODULES

Format: XCCS

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(IL:RPAQQ IL:TEXTMODULESCOMS

(

::: TEXTMODULES, a text file to file manager conversion utility.

:: Top-level and top-level internal functions

(IL:FUNCTIONS ADD-FORM BEFORE-MAKE-TEXTMODULE-FUNCTIONS CONVERT-LOADED-FILES DEFINER-FILECOM
DEFPRESENTATION EXPORT-DEFINERS FILECOM-SPECIFIER FORM-SPECIFIER HANDLE-READ-MACROS
IMPORT-DEFINERS INSTALL-FORM INSTALL-READ-MACRO LOAD-TEXTMODULE MAKE-LISP-FILE-READTABLE
MAKE-TEXTMODULE NAME-OF PARSE-ENVIRONMENT-SETUP-FILECOMS PRINT-ENVIRONMENT-FORMS PRINT-FILECOM
PROCESS-COMS-AFTER-LOAD REMOVE-PRESENTATION SYMBOLS-TRANSLATE TOP-LEVEL-FORM
TOP-LEVEL-FORM-FORM TOP-LEVEL-FORM-P TRANSLATE-FORM)

:: Support for semi-colon comments. Semicolon comments are special cased in this code, because rewriting the SEdit support for that
:: presentation would be hard.

(IL:FUNCTIONS ADJOIN-COMMENTS MAYBE-ADJOIN-COMMENTS MAYBE-UPGRADE-COMMENTS PRINT-COMMENT-LINE
PRINT-COPYRIGHT-COMMENTS PRINT-SEMICOLON-COMMENT READ-HASH-BAR-COMMENT READ-SEMICOLON-COMMENT
SEMICOLON-COMMENT-P UPGRADE-COMMENTS)

:: Support for #b #o #x #r

(IL:FUNCTIONS PRINT-HASH-BASED-NUMBER READ-HASH-BASED-NUMBER TRANSLATE-HASH-BASED-NUMBER)

:: Support for #*

(IL:FUNCTIONS PRINT-HASH-STAR READ-HASH-STAR TRANSLATE-HASH-STAR)

:: Support for #+ #-

(IL:FUNCTIONS PRINT-READABLE-READ-TIME-CONDITIONAL PRINT-UNREADABLE-READ-TIME-CONDITIONAL
READ-READ-TIME-CONDITIONAL TRANSLATE-READABLE-RTC TRANSLATE-UNREADABLE-RTC KEYWORDIZE
NON-KEYWORD?)

:: Support for #, #,

:: TRANSLATE-PREFIX-QUOTE is believed unnecessary now; check this...

(IL:FUNCTIONS PRINT-PREFIX-QUOTE READ-PREFIX-QUOTE TRANSLATE-PREFIX-QUOTE TRANSLATE-HASH-COMMA
TRANSLATE-HASH-DOT)

:: Some functions used in the old implementation of #+/#-

(IL:FUNCTIONS PRINT-READ-TIME-CONDITIONAL)
(IL:STRUCTURES PRESENTATION PREFIX-QUOTE PRESENTATION-OPS READ-TIME-CONDITIONAL SEMICOLON-COMMENT
SPECIFIER UNKNOWN-FORM UNKNOWN-SPECIFIER)
(IL:VARIABLES *CONDITIONAL-KEYWORDS* *CONVERT-LOADED-FILES* *UPGRADE-COMMENT-LENGTH* *JOIN-COMMENTS*
DEFDEFINER-MACROS *DELETE-FORM* COMMENT-LEVEL-MARKERS EOF-MARKER *SEdit-READ-MACROS*
SPECIFIERS)
(IL:P (UNLESS (FIND-PACKAGE "EMPTY")
(MAKE-PACKAGE "EMPTY" :USE NIL))
(MAKE-LISP-FILE-READTABLE))

:: PRESENTATIONS handling reading and printing of CL constructs

(IL:DEFINE-TYPES IL:PRESENTATIONS)
(IL:PRESENTATIONS HASH-BASED-NUMBER HASH-COMMA HASH-DOT HASH-IL-READABLE HASH-IL-UNREADABLE HASH-STAR
)
(IL:ADVISE REMOVE-COMMENTS (IL:EVAL :IN IL:\\DO-DEFINE-FILE-INFO))

:: (IL:FILES IL:SEdit-COMMONLISP)

(IL:PROP IL:ARGNAMES LOAD-TEXTMODULE MAKE-TEXTMODULE MAKE-SPECIFIER INSTALL-FORM FILECOM-SPECIFIER
FORM-SPECIFIER ADD-FORM PRINT-FILECOM)
(IL:PROP (IL:FILETYPE IL:MAKEFILE-ENVIRONMENT)
IL:TEXTMODULES))

::: TEXTMODULES, a text file to file manager conversion utility.

:: Top-level and top-level internal functions

(DEFUN **ADD-FORM** (FORM FILECOMS &OPTIONAL (SPECIFIER (FORM-SPECIFIER FORM)))

"Call appropriate functions to make definition editable, return new filecoms."
(FUNCALL (SPECIFIER-ADD-FORM SPECIFIER)
FORM FILECOMS))

(DEFUN BEFORE-MAKE-TEXTMODULE-FUNCTIONS (FILE STREAM)
"Things to do before the main body of the textmodule is printed."
(PRINT-COMMENT-LINE (GET FILE 'IL:MAKEFILE-ENVIRONMENT)
STREAM)
(PRINT-COPYRIGHT-COMMENTS FILE STREAM)
(TERPRI STREAM)
(PRINT-ENVIRONMENT-FORMS (GET FILE 'IL:MAKEFILE-ENVIRONMENT)
STREAM)
(TERPRI STREAM))

(DEFUN CONVERT-LOADED-FILES (FORM)
"Looks for loaded files to convert in top-level forms."
(DECLARE (SPECIAL *CONVERT-LOADED-FILES*))
(WHEN (AND *CONVERT-LOADED-FILES* (MEMBER (CAR FORM)
'(LOAD REQUIRE)
:TEST
'EQ)
(IF (EQ *CONVERT-LOADED-FILES* :QUERY)
(Y-OR-N-P "Convert file loaded by ~s too?" FORM)
T))
(CASE (CAR FORM)
(LOAD (LOAD-TEXTMODULE (EVAL (SECOND FORM))))
(REQUIRE (LOAD-TEXTMODULE (EVAL (THIRD FORM))))))
FORM)

(DEFUN DEFINER-FILECOM (FORM)
"Examines a form and returns its specifier (file command)."
(GET (CAR FORM)
' :DEFINER-FOR))

(DEFDEFINER DEFPRESENTATION IL:PRESENTATIONS (NAME &KEY FIELDS INCLUDE PRINT-FUNCTION (READ-MACRO NIL)
(TRANSLATOR #'(LAMBDA (PRESENTATION)
(CERROR "Ignore the presentation"
"Untranslatable presentation
~s" PRESENTATION)))
"Define a presentation type."
'(PROGN (DEFSTRUCT (,NAME (:INCLUDE ,@(IF (NULL INCLUDE)
(LIST 'PRESENTATION)
(ETYPECASE INCLUDE
(SYMBOL (LIST INCLUDE))
(LIST INCLUDE)))
(OPS (MAKE-PRESENTATION-OPS :READ-MACRO ',READ-MACRO :TRANSLATOR
',TRANSLATOR)))
(:PRINT-FUNCTION ,PRINT-FUNCTION))
,@FIELDS)
,@(UNLESS (NULL READ-MACRO)
(LIST '(HANDLE-READ-MACROS ',READ-MACRO)))
,NAME))

(DEFUN EXPORT-DEFINERS (FORM)
"Turn definers into macros."
(IF (EQ (CAR FORM)
'DEFDEFINER)
(LET* ((CLEANED-FORM (REMOVE-COMMENTS FORM))
(NAME (SECOND CLEANED-FORM))
(DEFINER-FOR (THIRD CLEANED-FORM))
(BODY (CDR (MEMBER DEFINER-FOR FORM))))
'(DEFMACRO ,(IF (CONSP NAME)
(CAR NAME)
NAME) ,@BODY))
FORM))

(DEFUN FILECOM-SPECIFIER (FILECOM)
"Return the specifier for the filecom, otherwise warn."
(OR (SOME #'(LAMBDA (SPECIFIER)
(AND (FUNCALL (SPECIFIER-FILECOM-P SPECIFIER)
FILECOM)
SPECIFIER))
SPECIFIERS)
(IL:NIL (WARN 'UNKNOWN-SPECIFIER :SPECIFIER FILECOM))))

(DEFUN FORM-SPECIFIER (FORM)
"Return the specifier for the form, otherwise warn."
(OR (SOME #'(LAMBDA (SPECIFIER)
(AND (FUNCALL (SPECIFIER-FORM-P SPECIFIER)
FORM)
SPECIFIER))

```
*SPECIFIERS*
(IL:NILL (WARN 'UNKNOWN-FORM :FORM FORM)))
```

(DEFUN **HANDLE-READ-MACROS** (MAC)

```
;; Read macros defined by presentations need to be installed in the "LISP-FILE" readtable. In addition those marked :SEdit need to be on the
;; *SEdit-READ-MACROS* list. MAC can be a list of the form:
;; (<character> [<sub-character>] <read-macro-function> [:SEdit])
;; or it can be a list of such lists.
```

```
(IF (CONSP (FIRST MAC)) ; Handle nested macro specs
    (DOLIST (RM MAC)
            (HANDLE-READ-MACROS RM))
    (PROGN (INSTALL-READ-MACRO MAC (IL:FIND-READTABLE "LISP-FILE"))
          (WHEN (EQ :SEdit (CAR (LAST MAC)))
                (LET* ((KEY (IF (AND (CHARACTERP (FIRST MAC))
                                   (CHARACTERP (SECOND MAC)))
                                (CONS (FIRST MAC)
                                       (SECOND MAC))
                                (FIRST MAC))
                       (DATA (IF (CHARACTERP KEY)
                                  (SECOND MAC)
                                  (THIRD MAC))))
                  (SETF (GETHASH KEY *SEdit-READ-MACROS*)
                        DATA))))))
```

(DEFUN **IMPORT-DEFINERS** (FORM)

```
"Change a macro to a definer if we've been told its OK."
(DECLARE (SPECIAL *DEFDEFINER-MACROS*))
(IF (AND (EQ (CAR FORM)
            'DEFMACRO)
        (MEMBER (CADR FORM)
                *DEFDEFINER-MACROS* :TEST 'EQ))
    '(DEFDEFINER , (CADR FORM) IL:FUNCTIONS ,@(CDDR FORM))
    FORM))
```

(DEFUN **INSTALL-FORM** (FORM &OPTIONAL (SPECIFIER (**FORM-SPECIFIER** FORM)))

```
"Install a definition as current and executable."
(WHEN (NOT (MEMBER IL:DFNFLAG ' (IL:PROP IL:ALLPROP)))
    (FUNCALL (SPECIFIER-INSTALL-FORM SPECIFIER)
             FORM))
```

(DEFUN **INSTALL-READ-MACRO** (READ-MACRO TABLE)

```
(COND
 ((AND (CHARACTERP (FIRST READ-MACRO))
       (CHARACTERP (SECOND READ-MACRO)))
  (MAKE-DISPATCH-MACRO-CHARACTER (FIRST READ-MACRO)
    T TABLE)
  (SET-DISPATCH-MACRO-CHARACTER (FIRST READ-MACRO)
    (SECOND READ-MACRO)
    (THIRD READ-MACRO)
    TABLE))
 ((CHARACTERP (FIRST READ-MACRO))
  (SET-MACRO-CHARACTER (FIRST READ-MACRO)
    (SECOND READ-MACRO)
    T TABLE))
 (T (ERROR "Bad read macro spec ~s" READ-MACRO))))
```

(DEFUN **LOAD-TEXTMODULE** (PATHNAME &KEY (MODULE (STRING-UPCASE (PATHNAME-NAME PATHNAME))))

```
(INSTALL T) ; Name of module which has these contents.
(PACKAGE (FIND-PACKAGE "USER")) ; Install definitions as current?
; Package to read file in.
(UPGRADE-COMMENT-LENGTH *UPGRADE-COMMENT-LENGTH*) ; Change single to double semi at this length.
(JOIN-COMMENTS *JOIN-COMMENTS*) ; Smash together adjacent comments?
(CONVERT-LOADED-FILES *CONVERT-LOADED-FILES*) ; Names of macros that should become definers.
(DEFDEFINER-MACROS *DEFDEFINER-MACROS*)
```

```
)
"Load a text file, creating a content description."
(SETQ PATHNAME (MERGE-PATHNAMES PATHNAME ".LISP"))
(ETYPESCASE MODULE
 (STRING T)
 (SYMBOL (SETQ MODULE (SYMBOL-NAME MODULE))))
(LET ((IL:DFNFLAG (IF (NULL INSTALL)
                      ' IL:PROP
                      INSTALL))
      (*PACKAGE* (IF (PACKAGE PACKAGE)
                     PACKAGE
```

```

(FIND-PACKAGE PACKAGE)))
(*READTABLE* (IL:FIND-READTABLE "LISP-FILE"))
(*JOIN-COMMENTS* JOIN-COMMENTS)
(*UPGRADE-COMMENT-LENGTH* UPGRADE-COMMENT-LENGTH)
(*CONVERT-LOADED-FILES* CONVERT-LOADED-FILES)
(*DEFDEFINER-MACROS* DEFDEFINER-MACROS)
(FILECOMS NIL)
(DECLARE (SPECIAL *PACKAGE* *READTABLE* *JOIN-COMMENTS* *UPGRADE-COMMENT-LENGTH* *CONVERT-LOADED-FILES*
          *DEFDEFINER-MACROS*))
(WITH-OPEN-FILE (STREAM PATHNAME :DIRECTION :INPUT)
  (LET (FORM)
    (LOOP (SETQ FORM (READ STREAM NIL EOF-MARKER))
      (MAYBE-ADJOIN-COMMENTS FORM)
      (MAYBE-UPGRADE-COMMENTS FORM)
      (WHEN (EQ FORM EOF-MARKER)
        (RETURN NIL))

      ;; JRB - This used to be ADD-FORM and then INSTALL-FORM; I believe it needs to be the other way around.
      ;; Consider:

      ;; (EVAL-WHEN (EVAL COMPILE LOAD)
      ;; (DEFMACRO MUMBLE (...))
      ;; (MUMBLE ...))

      ;; where MUMBLE is on *DEFDEFINER-MACROS*. The whole EVAL-WHEN goes on the coms before any of it gets
      ;; installed, so the sub-mumbles don't get made into (FUNCTIONS ...) coms entries.

      (LET ((SPECIFIER (FORM-SPECIFIER FORM)))
        (INSTALL-FORM FORM SPECIFIER)
        (SETQ FILECOMS (ADD-FORM FORM FILECOMS SPECIFIER))))))
(MULTIPLE-VALUE-BIND (FILECOMS ENVIRONMENT)
  (PARSE-ENVIRONMENT-SETUP-FILECOMS FILECOMS)
  (MAYBE-ADJOIN-COMMENTS FILECOMS)
  (MAYBE-UPGRADE-COMMENTS FILECOMS)

```

; Must be done AFTER the environment setup is parsed out, lest
; the env comment be joined to the rest of the initial comments
; and stripped.

```

(SETQ FILECOMS (PROCESS-COMS-AFTER-LOAD FILECOMS))
(LET* ((NAME (INTERN MODULE "INTERLISP"))
      (FILEVAR (IL:FILECOMS NAME)))
  (SETF (SYMBOL-VALUE FILEVAR)
        FILECOMS)
  (IL:ADDFILE NAME)
  (SETF (GET NAME 'IL:FILETYPE)
        :COMPILE-FILE)
  (IL:ADDTOFILE `(,NAME IL:FILETYPE)
                'IL:PROPS NAME)
  (SETF (GET NAME 'IL:MAKEFILE-ENVIRONMENT)
        ENVIRONMENT)
  (IL:ADDTOFILE `(,NAME IL:MAKEFILE-ENVIRONMENT)
                'IL:PROPS NAME)
  NAME)))

```

(DEFUN **MAKE-LISP-FILE-READTABLE** ())

```

"Build and name the LISP-FILE readtable."
(LET ((TABLE (OR (IL:FIND-READTABLE "LISP-FILE")

```

; If this is removed, the file cannot be loaded prop and continue
; to work. The LISP-FILE readtable will be initialized, but the
; defpresentation forms not re-evaluated.
; This has to be copied from XCL so that XAIE File Manager can
; read and write the imported files!

```

(COPY-READTABLE (IL:FIND-READTABLE "XCL"))))
)
(SET-MACRO-CHARACTER #\; #'READ-SEMICOLON-COMMENT NIL TABLE)
(INSTALL-READ-MACRO ' (#\# #\| READ-HASH-BAR-COMMENT)
  TABLE)
(IL:READTABLEPROP TABLE 'IL:NAME "LISP-FILE")
TABLE))

```

(DEFUN **MAKE-TEXTMODULE** (MODULE &KEY (TYPE ".LISP")

```

(PATHNAME (MERGE-PATHNAMES MODULE (MERGE-PATHNAMES TYPE)))
(FILECOMS (SYMBOL-VALUE (IL:FILECOMS MODULE)))
(WIDTH 80))

```

"Write a text file based on the file manager file."

```

(SETQ MODULE (ETYPECASE MODULE
  (STRING MODULE)
  (SYMBOL (SYMBOL-NAME MODULE))))
(LET ((*PACKAGE* (FIND-PACKAGE "USER"))
      (*READTABLE* (IL:FIND-READTABLE "LISP-FILE"))
      (*PRINT-BASE* *PRINT-BASE*)
      (*PRINT-CASE* :DOWNCASE)
      (*PRINT-ARRAY* T)
      (*PRINT-LEVEL* NIL)
      (*PRINT-LENGTH* NIL)
      (*PRINT-STRUCTURE* T)
      (*PRINT-PRETTY* T)
      (IL:*PRINT-SEMICOLON-COMMENTS* T)
      (IL:FONTCHANGEFLG NIL)

```

```

(IL:\#RPARS NIL)
(IL:**COMMENT**FLG NIL)
(FILE (IL:MKATOM MODULE))
(DECLARE (SPECIAL IL:*PRINT-SEMICOLON-COMMENTS* FILE))
(WITH-OPEN-FILE (STREAM PATHNAME :DIRECTION :OUTPUT :IF-EXISTS :NEW-VERSION)
  (IL:LINELENGTH WIDTH STREAM) ; For Interlisp prettyprinter.
  (BEFORE-MAKE-TEXTMODULE-FUNCTIONS (INTERN MODULE "INTERLISP")
    STREAM)
  (DOLIST (FILECOM FILECOMS)
    (FRESH-LINE STREAM)
    (LET ((TYPE (FILECOM-SPECIFIER FILECOM))
          (WHEN TYPE (PRINT-FILECOM FILECOM STREAM TYPE))))))

```

PATHNAME)

```

(DEFUN NAME-OF (FORM)
  (FUNCALL (GET (CAR FORM)
    ' :DEFINITION-NAME)
  (REMOVE-COMMENTS FORM)))

```

```

(DEFUN PARSE-ENVIRONMENT-SETUP-FILECOMS (CONTENTS)
  "Parse out any environment specifiers, returning the reduced contents list and an environment object."
  ;; If you change anything in here you must change the printer in print-environment-forms.

```

```

(WHEN (AND (SEMICOLON-COMMENT-P (FIRST CONTENTS))
  (EQL 0 (SEARCH "--*" (SEMICOLON-COMMENT-STRING (FIRST CONTENTS)))))
  ; Discard EMACS comment line
  (POP CONTENTS))
(LET ((PACKAGE-FORM NIL) ; Collects the package setup forms.
      (BASE 10) ; Default.
      (COMMENT-FORMS NIL) ; Comments to be pushed onto the front of the coms.
  )

```

;; Most of the mechanism below handles comments between the setup forms in the filecoms. CONTENTS names the last parsed position.
 ;; NEXT-TOP-LEVEL-FORM slides NEXT-TAIL past the comments to the next top-level form. WHEN-RECOGNIZED checks the form and if
 ;; recognized pops the in-between comments onto COMMENT-FORMS, others onto PACKAGE-FORM.

```

(LET ((NEXT-TAIL CONTENTS) ; Contains tail at next top-level form.
      FORM ; Contains next top level form.
  )

```

```

(BLOCK PARSE-COMPLETE
  (FLET ((NEXT-TOP-LEVEL-FORM NIL
    ;; Find tail containing the next top level form.
    (LOOP (WHEN (NULL NEXT-TAIL)
      (RETURN NIL))
      (LET ((HEAD (FIRST NEXT-TAIL)))
        (COND
          ((TOP-LEVEL-FORM-P HEAD)
            (SETQ FORM (TOP-LEVEL-FORM-FORM HEAD))
            (WHEN (NOT (READ-TIME-CONDITIONAL-P FORM))
              (RETURN NIL)))
          ((SEMICOLON-COMMENT-P HEAD)
            NIL)
          (T (RETURN-FROM PARSE-COMPLETE NIL))))
        (POP NEXT-TAIL)))
      (POP-FORMS NIL

```

;; Comments between CONTENTS and (not including) NEXT-TAIL are popped onto COMMENT-FORMS. The
 ;; form in NEXT-TAIL is discarded and CONTENTS is updated.

```

(LOOP (WHEN (EQ CONTENTS NEXT-TAIL)
  (RETURN NIL))
  (PUSH (POP CONTENTS)
    COMMENT-FORMS)))
(MACROLET ((WHEN-RECOGNIZED (TEST &BODY FORMS)
  ;; Find the next top level form. Use TEST to recognize whether its an environment setup form. Then
  ;; execute the body and discard the processed form.
  `(PROGN (NEXT-TOP-LEVEL-FORM)
    (WHEN ,TEST
      (POP-FORMS)
      ,@FORMS
      (POP NEXT-TAIL)
      (SETQ CONTENTS NEXT-TAIL))))))

```

;; package setup forms

```

(WHEN-RECOGNIZED (EQ (FIRST FORM)
  ' PROVIDE)
  (PUSH FORM PACKAGE-FORM))
(WHEN-RECOGNIZED (EQ (FIRST FORM)
  ' IN-PACKAGE)
  (PUSH FORM PACKAGE-FORM))
(WHEN-RECOGNIZED (EQ (FIRST FORM)
  ' SHADOW)
  (PUSH (SYMBOLS-TRANSLATE FORM)

```

```

      PACKAGE-FORM) )
(WHEN-RECOGNIZED (EQ (FIRST FORM
      'EXPORT)
      (PUSH (SYMBOLS-TRANSLATE FORM)
      PACKAGE-FORM) )
(WHEN-RECOGNIZED (MEMBER (FIRST FORM
      ' (REQUIRE IL:FILESLOAD)
      :TEST
      #'EQ)
      (PUSH FORM PACKAGE-FORM) )
(WHEN-RECOGNIZED (EQ (FIRST FORM
      'USE-PACKAGE)
      (PUSH FORM PACKAGE-FORM) )
(WHEN-RECOGNIZED (EQ (FIRST FORM
      'IMPORT)
      (PUSH (SYMBOLS-TRANSLATE FORM)
      PACKAGE-FORM) )
(WHEN-RECOGNIZED (EQ (FIRST FORM
      'SHADOWING-IMPORT)
      (PUSH (SYMBOLS-TRANSLATE FORM)
      PACKAGE-FORM) )

```

;; read-base

```

(WHEN-RECOGNIZED (AND (EQ (FIRST FORM
      'SETF)
      (EQ (SECOND FORM)
      '*READ-BASE*))
      (SETQ BASE (THIRD FORM))))))

```

;; Return the new contents and an environment.

```

(VALUE (APPEND (NREVERSE COMMENT-FORMS)
      CONTENTS)
      `(:READTABLE "LISP-FILE" :PACKAGE , (IF PACKAGE-FORM
      ` (LET ((*PACKAGE* *PACKAGE*))
      , @ (NREVERSE PACKAGE-FORM)
      *PACKAGE*)
      "USER")
      :BASE
      ,BASE)))

```

(DEFUN PRINT-ENVIRONMENT-FORMS (ENVIRONMENT STREAM)

"Print the environment initializing forms from ENVIRONMENT onto STREAM."

```

(MACROLET
  ((PRINT-AND-EVAL (FORM STREAM)
    ` (LET ((FORM ,FORM)
      (LET ((*PACKAGE* (FIND-PACKAGE "EMPTY"))) ; This allows IMPORT, SHADOW, etc. statements to work,
      ; although it increases verbosity...
      (PPRINT FORM ,STREAM))
      (EVAL FORM))))
  (DO ((TAIL ENVIRONMENT (CDDR TAIL))
    ((NULL TAIL))
    (LET
      ((NAME (FIRST TAIL))
      (VALUE (SECOND TAIL)))
      (ECASE NAME
        (:READTABLE )
        (:PACKAGE
          (TYPECASE VALUE
            (NULL (ERROR "NIL given as package name"))
            ((OR SYMBOL STRING) (PRINT-AND-EVAL `(IN-PACKAGE ,VALUE)
              STREAM))
            (CONS
              (CASE (FIRST VALUE)
                (DEFPACKAGE ; We only cover the portable options to defpackage. Note that
                ; they're converted once but not back.
                  (PRINT-AND-EVAL
                    `(IN-PACKAGE ,(STRING (SECOND VALUE))
                      , @ (LET ((NICKNAMES (CDR (ASSOC :NICKNAMES (CDDR VALUE))))
                        (WHEN NICKNAMES
                          ` (:NICKNAMES ',NICKNAMES))))
                    STREAM)
                  (MAPC #'(LAMBDA (OPTION FUNCTION)
                    (LET ((VALUE (CDR (ASSOC OPTION (CDDR VALUE))))
                      (WHEN VALUE
                        (PRINT-AND-EVAL ` (,FUNCTION ',VALUE)
                          STREAM))))
                    ' (:SHADOW :EXPORT :USE :IMPORT :SHADOWING-IMPORT)
                    ' (SHADOW EXPORT USE-PACKAGE IMPORT SHADOWING-IMPORT)))
                    ; A fancy LET environment!
                  (LET
                    (MAPCAR #'(LAMBDA (FORM)
                      (PRINT-AND-EVAL FORM STREAM))
                    (BUTLAST (CDDR VALUE)) ; Avoid the LET, its bindings and the returned *package*.
                    ))))
      (T (ERROR "Unknown package specifier in environment ~s" VALUE))))
  (:BASE (PRINT-AND-EVAL `(SETF *READ-BASE* ,VALUE)

```

STREAM))))))

(DEFUN PRINT-FILECOM (FILECOM STREAM &OPTIONAL (SPECIFIER (FILECOM-SPECIFIER FILECOM)))
"Gets the print form of a specifier."
(FUNCALL (SPECIFIER-PRINT-FILECOM SPECIFIER)
FILECOM STREAM))

(DEFUN PROCESS-COMS-AFTER-LOAD (CONTENTS)
"Destructively optimize COMS; compress adjacent definers, p, files, evert redundant COMS."
(DO ((TAIL CONTENTS))
(NULL TAIL)
CONTENTS)
(LET ((ONE (FIRST TAIL)))
(COND
((AND (CDR TAIL)
(OR (GET (FIRST ONE)
':DEFINED-BY)
(MEMBER (FIRST ONE)
'(IL:FILES IL:P)))
(EQ (FIRST ONE)
(FIRST (SECOND TAIL))))
; Adjacent coms of same type.
; Last cell in first com.
; The tail of the next com.
; Append next tail onto current.
; Splice OUT second com.
(LET ((END-OF-ONE (LAST ONE))
(HEAD-OF-TWO (CDR (SECOND TAIL))))
(RPLACD END-OF-ONE HEAD-OF-TWO)
(RPLACD TAIL (CDDR TAIL)))
))
((EQ 'IL:COMS (FIRST ONE))
; Descend into IL:COMS
(RPLACD ONE (PROCESS-COMS-AFTER-LOAD (CDR ONE)))
(WHEN (NULL (CDDR ONE))
; Remove redundant COMS enclosures.
; Replace the form with its contents.
(RPLACA TAIL (SECOND ONE)))
)
(POP TAIL))
((OR (EQ 'IL:EVAL-WHEN (FIRST ONE))
(EQ 'EVAL-WHEN (FIRST ONE)))
; Descend into EVAL-WHENs
(RPLACD (CDR ONE)
(PROCESS-COMS-AFTER-LOAD (CDDR ONE)))
(POP TAIL))
(T (POP TAIL))))))

(DEFUN REMOVE-PRESENTATION (SEQUENCE INDEX)
"Translates a presentation by removing it."
(COND
((EQL INDEX 0)
(SUBSEQ SEQUENCE 1))
((EQL INDEX (1- (LENGTH SEQUENCE)))
(SUBSEQ SEQUENCE 0 INDEX))
(T (CONCATENATE (IF (LISTP SEQUENCE)
'LIST
(TYPE-OF SEQUENCE))
(SUBSEQ SEQUENCE 0 INDEX)
(SUBSEQ SEQUENCE (1+ INDEX))))))

(DEFUN SYMBOLS-TRANSLATE (FORM)
`,(FIRST FORM)
,(LET ((NONLOCAL-SYMBOLS NIL)
; These are symbols defined elsewhere.
(Stringify-Symbols NIL)
; These are symbols accessible in the current package.
)
(DOLIST (SYMBOL (EVAL (TRANSLATE-FORM (SECOND FORM))))
(COND
((EQ SYMBOL (FIND-SYMBOL (SYMBOL-NAME SYMBOL)))
(PUSH (SYMBOL-NAME SYMBOL)
STRINGIFY-SYMBOLS))
(T (PUSH SYMBOL NONLOCAL-SYMBOLS))))
(IF (NULL NONLOCAL-SYMBOLS)
(MAPCAR #'INTERN ',STRINGIFY-SYMBOLS)
(APPEND ',NONLOCAL-SYMBOLS (MAPCAR #'INTERN ',STRINGIFY-SYMBOLS))))
,@(CDDR FORM))

(DEFMACRO TOP-LEVEL-FORM (&BODY FORMS)
"Wrapped around top level forms to install presentations."
` (PROGN ,@(TRANSLATE-FORM FORMS)))

(DEFUN TOP-LEVEL-FORM-FORM (PLACE)
"Return the form in the top-level form specifier."
;; JRB - when PLACE is a (P (FOO) (BAR)...) expression, turn it into a PROGN (should really rework the guts of the converter to handle each clause
;; seperately, but...)
(FLET ((STRIP (FORM)

```

      (IF (EQ (FIRST FORM)
              'TOP-LEVEL-FORM)
          (SECOND FORM
            FORM)))
  (IF (CDDR PLACE)
      `(PROGN ,@(MAPCAR #'STRIP (CDR PLACE)))
      (STRIP (SECOND PLACE))))))

```

```

(DEFUN TOP-LEVEL-FORM-P (SPECIFIER)
  (EQ 'IL:P (FIRST SPECIFIER)))

```

```

(DEFUN TRANSLATE-FORM (SEQUENCE)
  "Create an evaluable form from one with presentations in it."
  (COND
    ((LISTP SEQUENCE)
     (SETQ SEQUENCE (COPY-LIST SEQUENCE))
     ; An optimization for lists, since it would be terrible to ELT into
     ; them at each position.
     (DO ((TAIL SEQUENCE)
          (LAST NIL)
          ((NOT (CONSP TAIL))
           SEQUENCE)
          (LET ((HEAD (FIRST TAIL)))
              (COND
                ((SEMICOLON-COMMENT-P HEAD)
                 ; Special case for old style comments.
                 (IF (NULL LAST)
                     (SETQ SEQUENCE (CDR TAIL))
                     (RPLACD LAST (CDR TAIL)))
                 ; Last stays the same in either case.
                 (POP TAIL))
                ((PRESENTATION-P HEAD)
                 (LET* ((INSTALLER (PRESENTATION-OPS-TRANSLATOR (PRESENTATION-OPS HEAD)))
                       (RESULT (IF (EQ INSTALLER :DELETE)
                                    *DELETE-FORM*
                                    (FUNCALL INSTALLER HEAD))))
                     (COND
                       ((EQ RESULT *DELETE-FORM*)
                        (IF (NULL LAST)
                            (SETQ SEQUENCE (CDR TAIL))
                            (RPLACD LAST (CDR TAIL)))
                        ; Last stays the same in either case.
                        (POP TAIL))
                       (T (RPLACA TAIL RESULT)
                          (SETQ LAST TAIL)
                          (POP TAIL))))))
                 ((TYPEP HEAD 'SEQUENCE)
                  (RPLACA TAIL (TRANSLATE-FORM HEAD))
                  (SETQ LAST TAIL)
                  (POP TAIL))
                 (T (SETQ LAST TAIL)
                    (POP TAIL))))))
     ((AND (NOT (STRINGP SEQUENCE))
            (TYPEP SEQUENCE 'SEQUENCE))
     ; Optimization: avoid strings.
     ; The general case of a sequence.
     (SETQ SEQUENCE (COPY-SEQ SEQUENCE))
     (DO ((INDEX 0)
         (LENGTH (LENGTH SEQUENCE)))
         ((EQL INDEX LENGTH)
          SEQUENCE)
         (LET ((HEAD (ELT SEQUENCE INDEX)))
             (COND
               ((PRESENTATION-P HEAD)
                (LET* ((INSTALLER (PRESENTATION-OPS-TRANSLATOR (PRESENTATION-OPS HEAD)))
                      (RESULT (IF (EQ INSTALLER :DELETE)
                                  *DELETE-FORM*
                                  (FUNCALL INSTALLER HEAD))))
                    (COND
                     ((EQ RESULT *DELETE-FORM*)
                      (SETQ SEQUENCE (REMOVE-PRESENTATION SEQUENCE INDEX))
                      (DECF LENGTH))
                     (T (SETF (ELT SEQUENCE INDEX)
                              RESULT)
                        (INCF INDEX))))))
               ((TYPEP HEAD 'SEQUENCE)
                (SETF (ELT SEQUENCE INDEX)
                      (TRANSLATE-FORM HEAD))
                (INCF INDEX))
               (T (INCF INDEX))))))
     ((PRESENTATION-P SEQUENCE)
      (LET* ((INSTALLER (PRESENTATION-OPS-TRANSLATOR (PRESENTATION-OPS SEQUENCE)))
            (RESULT (IF (EQ INSTALLER :DELETE)
                       *DELETE-FORM*
                       (FUNCALL INSTALLER SEQUENCE))))
          (IF (EQ RESULT *DELETE-FORM*)
              NIL
              RESULT)))
     (T SEQUENCE)))

```

:: Support for semi-colon comments. Semicolon comments are special cased in this code, because rewriting the SEdit support for that presentation

:: would be hard.

```

(DEFUN ADJOIN-COMMENTS (FORM)
  "Smashes same type comments together.  No return value."
  (COND
    ((NOT (LISTP FORM)))
    ((OR (NULL FORM)
         (NULL (CDR FORM)))
     ; Zero or one element
    )
    (T
     ; CONSP form = T
     (LET ((HEAD FORM)
           (FIRST NIL)
           (SECOND NIL))
       (LOOP (UNLESS (CONSP (CDR HEAD))
                    ; Dotted lists
                    (RETURN))
             (SETQ FIRST (FIRST HEAD))
             (SETQ SECOND (SECOND HEAD))
             (COND
              ((AND (SEMICOLON-COMMENT-P FIRST)
                    (SEMICOLON-COMMENT-P SECOND)
                    (EQ (SEMICOLON-COMMENT-MARKER FIRST)
                        (SEMICOLON-COMMENT-MARKER SECOND)))
               ;; Smash second onto first
               (SETF (SEMICOLON-COMMENT-STRING FIRST)
                     (CONCATENATE 'STRING (SEMICOLON-COMMENT-STRING FIRST)
                                   " "
                                   (SEMICOLON-COMMENT-STRING SECOND)))
               ;; Delete cell from list.
               (RPLACD HEAD (CDDR HEAD)))
              (T ;; Recurse
               (ADJOIN-COMMENTS FIRST))
              ;; Continue
              (SETQ HEAD (CDR HEAD))))
         (WHEN (NULL HEAD)
               (RETURN))))))

```

```

(DEFUN MAYBE-ADJOIN-COMMENTS (CONTENTS)
  (DECLARE (SPECIAL *JOIN-COMMENTS*))
  (WHEN *JOIN-COMMENTS*
    (SETQ CONTENTS (ADJOIN-COMMENTS CONTENTS)))
  CONTENTS)

```

```

(DEFUN MAYBE-UPGRADE-COMMENTS (FORM)
  "Depending on setting of *upgrade-comment-length* we upgrade comments in this form."
  (IF (NUMBERP *UPGRADE-COMMENT-LENGTH*
        (UPGRADE-COMMENTS FORM)
      FORM))

```

```

(DEFUN PRINT-COMMENT-LINE (ENVIRONMENT STREAM)
  "Prints a mode line onto the STREAM based on the ENVIRONMENT."
  (FORMAT STREAM ";;; -*- Mode: LISP")
  (DO ((TAIL ENVIRONMENT (CDDR TAIL))
      ((NULL TAIL))
      (LET ((NAME (FIRST TAIL))
            (VALUE (SECOND TAIL)))
        (CASE NAME
          (:READTABLE )
          (:PACKAGE (COND
                     ((STRINGP VALUE)
                      (FORMAT STREAM "; Package: ~a" VALUE))
                     ((EQ (FIRST VALUE)
                          'DEFPACKAGE)
                      (FORMAT STREAM "; Package: (~a (~{~a ~}) 1000)" (STRING (SECOND VALUE))
                                   (OR (MAPCAR #'STRING (CDR (ASSOC :USE (CDDR VALUE))))
                                       (LIST "LISP"))))
                     ((EQ (FIRST VALUE)
                          'LET)
                      (LET ((FORM (ASSOC 'IN-PACKAGE (CDDR VALUE))))
                          (FORMAT STREAM "; Package: (~a (~{~a ~}) 1000)" (STRING (SECOND FORM))
                                   (OR (MAPCAR #'STRING (CDR (GETF FORM :USE NIL)))
                                       (LIST "LISP"))))))
                     (T (ERROR "Unknown package specifier in environment ~s" VALUE))))
          (:BASE (FORMAT STREAM "; Base: ~a" VALUE))))
    (FORMAT STREAM " -*-")
    (TERPRI STREAM))

```

```

(DEFUN PRINT-COPYRIGHT-COMMENTS (ROOT-NAME STREAM)

```

```
(LET ((OWNER (GET ROOT-NAME 'IL:COPYRIGHT)))
  (WHEN (AND OWNER (CONSP OWNER))
    (FORMAT STREAM ";;; Copyright (c) "
      (DO ((TAIL (CDR OWNER)
        (CDR TAIL)))
        ((NULL TAIL))
        (FORMAT STREAM "~4d" (CAR TAIL))
        (IF (CDR TAIL)
          (PRINC ", " STREAM)))
      (FORMAT STREAM " by ~a~&" (CAR OWNER))))))
```

```
(DEFUN PRINT-SEMICOLON-COMMENT (FORM STREAM)
  "Print a semicolon comment. Depends on IL:*PRINT-SEMICOLON-COMMENTS* being true."
  (WRITE FORM :STREAM STREAM))
```

```
(DEFUN READ-HASH-BAR-COMMENT (STREAM SUB-CHAR INTEGER)
  "Read the characters of a hash bar comment, creating a comment object."
  (WHEN INTEGER (WARN "Spurious integer argument to hash macro ignored.))
  (LET (PEEK-CHAR (COMMENT-BUFFER (MAKE-ARRAY 1024 :ELEMENT-TYPE 'CHARACTER :FILL-POINTER 0 :ADJUSTABLE T)))
    (LOOP (SETQ SUB-CHAR (READ-CHAR STREAM NIL EOF-MARKER))
      (WHEN (EQ SUB-CHAR EOF-MARKER)
        (RETURN (MAKE-SEMICOLON-COMMENT :MARKER 'IL:\| :STRING COMMENT-BUFFER)))
      (WHEN (EQL SUB-CHAR #\|)
        (SETQ PEEK-CHAR (PEEK-CHAR STREAM NIL EOF-MARKER))
        (WHEN (EQL PEEK-CHAR #\#)
          (READ-CHAR STREAM NIL EOF-MARKER)
          (RETURN (MAKE-SEMICOLON-COMMENT :MARKER 'IL:\| :STRING COMMENT-BUFFER))))
      (VECTOR-PUSH-EXTEND SUB-CHAR COMMENT-BUFFER))))
```

```
(DEFUN READ-SEMICOLON-COMMENT (STREAM DISP-CHAR &AUX CHAR
  ; Current character.
  (LEVEL 0) ; Comment level.
  (STARTING T) ; In semicolons?
  (COMMENT-BUFFER (MAKE-ARRAY 128 :ELEMENT-TYPE 'CHARACTER
  :FILL-POINTER 0 :ADJUSTABLE T)))
  "Reads the characters of a comment, building a Xerox Lisp style comment."
  ;; Adjacent comments of the same level are smashed together during an after-read pass over the structure. Another pass upgrades long single
  ;; semi-colon comments to double...
  (LOOP (SETQ CHAR (READ-CHAR STREAM NIL EOF-MARKER))
    (WHEN (OR (EQL CHAR EOF-MARKER)
      (EQL CHAR #\Newline))
      (SETQ LEVEL (MIN LEVEL (1- (LENGTH COMMENT-LEVEL-MARKERS))))
      (RETURN (MAKE-SEMICOLON-COMMENT :MARKER (ELT COMMENT-LEVEL-MARKERS LEVEL)
        :STRING COMMENT-BUFFER)))
    (IF STARTING
      (SETQ STARTING (COND
        ((EQL CHAR #\;)
          (INCF LEVEL))
        (T (IF (NOT (EQL CHAR #\Space)) ; Ignore a single space after semicolons, save others.
          (VECTOR-PUSH-EXTEND CHAR COMMENT-BUFFER)
          NIL)))
      (VECTOR-PUSH-EXTEND CHAR COMMENT-BUFFER))))
```

```
(DEFUN SEMICOLON-COMMENT-P (FORM)
  "Is FORM a semicolon comment?"
  ;; All info about the structure of semicolon comments is encapsulated in this function and the semicolon-comment structure.
  (AND (CONSP FORM)
    (EQ (FIRST FORM)
      'IL:*)
    (MEMBER (SECOND FORM)
      COMMENT-LEVEL-MARKERS :TEST #'EQ)
    (STRINGP (THIRD FORM))
    (NULL (NTHCDR 3 FORM))))
```

```
(DEFUN UPGRADE-COMMENTS (FORM)
  "Smash long single semicolon comments into double semies. No return value."
  ;; Should only be called if *UPGRADE-COMMENT-LENGTH* is a number!
  (WHEN (CONSP FORM)
    (DO ((TAIL FORM (CDR TAIL))
      ((NOT (CONSP TAIL))
        ; Dotted lists
      ))
      (LET ((FORM (FIRST TAIL)))
        (COND
          ((AND (SEMICOLON-COMMENT-P FORM)
            (> (LENGTH (SEMICOLON-COMMENT-STRING FORM))
              *UPGRADE-COMMENT-LENGTH*))
            (SETF (SEMICOLON-COMMENT-MARKER FORM)
              (NTH 1 COMMENT-LEVEL-MARKERS))))
```

```
((CONSP FORM)
(UPGRADE-COMMENTS FORM))))))
```

:: Support for #b #o #x #r

```
(DEFUN PRINT-HASH-BASED-NUMBER (OBJECT STREAM DEPTH)
(CASE (HASH-BASED-NUMBER-BASE OBJECT)
((2 8 16) (FORMAT STREAM "#~A~VR" (CASE (HASH-BASED-NUMBER-BASE OBJECT)
;; Using the atoms here looks a little warped, but it makes this print method obey
;; *print-case* for free...
(2 'IL:B)
(8 'IL:O)
(16 'IL:X))
(HASH-BASED-NUMBER-BASE OBJECT)
(HASH-BASED-NUMBER-NUMBER OBJECT))))
(OTHERWISE
(UNLESS (< 2 (HASH-BASED-NUMBER-BASE OBJECT)
37)
(ERROR "Bogus base in ~R presentation: ~d" (HASH-BASED-NUMBER-BASE OBJECT)))
(FORMAT STREAM "#~DR~VR" (HASH-BASED-NUMBER-BASE OBJECT)
(HASH-BASED-NUMBER-BASE OBJECT)
(HASH-BASED-NUMBER-NUMBER OBJECT))))))
```

```
(DEFUN READ-HASH-BASED-NUMBER (STREAM SUB-CHAR ARG)
(LET ((RBASE (ECASE SUB-CHAR
((#\b #\B) 2)
((#\o #\O) 8)
((#\x #\X) 16)
((#\r #\R)
(UNLESS (< 2 ARG 37)
(ERROR "Bogus base in ~R: ~d" ARG))
ARG))))
(MAKE-HASH-BASED-NUMBER :BASE RBASE :NUMBER (LET ((*READ-BASE* RBASE))
(READ STREAM))))))
```

```
(DEFUN TRANSLATE-HASH-BASED-NUMBER (OBJECT)
(HASH-BASED-NUMBER-NUMBER OBJECT))
```

:: Support for #*

```
(DEFUN PRINT-HASH-STAR (OBJECT STREAM DEPTH)
(PRINC "#*" STREAM)
(MAP NIL #'(LAMBDA (B)
(PRINC (IF (ZEROP B)
"0"
"1")
STREAM))
(HASH-STAR-VECTOR OBJECT)))
```

```
(DEFUN READ-HASH-STAR (STREAM SUB-CHAR ARG)
(MAKE-HASH-STAR :VECTOR (IL:HASH-STAR STREAM SUB-CHAR ARG)))
```

```
(DEFUN TRANSLATE-HASH-STAR (OBJECT)
(HASH-STAR-VECTOR OBJECT))
```

:: Support for #+ #-

```
(DEFUN PRINT-READABLE-READ-TIME-CONDITIONAL (OBJECT STREAM DEPTH)
"Form was read as a string, so print it with PRIN1"
(LET ((*PACKAGE* IL:*KEYWORD-PACKAGE*))
(FORMAT STREAM "#~a~s " (READ-TIME-CONDITIONAL-SIGN OBJECT)
(READ-TIME-CONDITIONAL-FEATURE OBJECT)))
(PRIN1 (READ-TIME-CONDITIONAL-FORM OBJECT)
STREAM))
```

```
(DEFUN PRINT-UNREADABLE-READ-TIME-CONDITIONAL (OBJECT STREAM DEPTH)
"Form was read as a string, so print it with PRINC"
(LET ((*PACKAGE* IL:*KEYWORD-PACKAGE*))
(FORMAT STREAM "#~a~s " (READ-TIME-CONDITIONAL-SIGN OBJECT)
(READ-TIME-CONDITIONAL-FEATURE OBJECT)))
(PRINC (READ-TIME-CONDITIONAL-FORM OBJECT)
STREAM))
```

```
(DEFUN READ-READ-TIME-CONDITIONAL (STREAM SUB-CHAR INTEGER)
(WHEN INTEGER (WARN "Spurious integer argument to hash macro ignored.))
(LET* ((FEATURE (LET ((*PACKAGE* IL:*KEYWORD-PACKAGE*))
```

```

        (READ STREAM)))
    (UNREAD-P (ECASE SUB-CHAR
        (#\- (IL:CMLREAD.FEATURE.PARSER FEATURE))
        (#\+ (NOT (IL:CMLREAD.FEATURE.PARSER FEATURE))))))
    (FORM (COND
        (UNREAD-P (LET ((START (FILE-POSITION STREAM))
            (LET ((*READ-SUPPRESS* T)
                (*READTABLE* (IL:FIND-READTABLE "XCL")))
                (DECLARE (SPECIAL *READ-SUPPRESS* *READTABLE*))
                (READ STREAM))
            (LET ((LENGTH (- (FILE-POSITION STREAM)
                START))
                (FILE-POSITION STREAM START)
                (LET ((BUFFER (MAKE-STRING LENGTH))
                    (DOTIMES (I LENGTH BUFFER)
                        (SETF (SVREF BUFFER I)
                            (READ-CHAR STREAM))))))
            (T (LET ((FORM (LIST (READ STREAM))))
                (LOOP (WHEN (NOT (SEMICOLON-COMMENT-P FORM))
                    (RETURN (IF (EQL 1 (LENGTH FORM))
                        (FIRST FORM)
                        `(PROGN ,@(NREVERSE FORM))))))
                (PUSH (READ STREAM)
                    FORM))))))
        (FUNCALL (IF UNREAD-P
            #'MAKE-HASH-IL-UNREADABLE
            #'MAKE-HASH-IL-READABLE)
            :FEATURE FEATURE :SIGN SUB-CHAR :FORM FORM)))

```

```

(DEFUN TRANSLATE-READABLE-RTC (OBJECT)
  ;; Check out the features, just in case someone accidentally put a non-keyword in there
  (WHEN (AND *CONDITIONAL-KEYWORDS* (NON-KEYWORD? (READ-TIME-CONDITIONAL-FEATURE OBJECT)))
    (CERROR "Make all symbols keywords" "~s contains a non-keyword" (READ-TIME-CONDITIONAL-FEATURE OBJECT))
    (SETF (READ-TIME-CONDITIONAL-FEATURE OBJECT)
        (KEYWORDIZE (READ-TIME-CONDITIONAL-FEATURE OBJECT))))
  ;; For paranoia's sake, we check the feature status again as we translate, in case someone changed the *FEATURES* list behind our back.
  (IF (ECASE (READ-TIME-CONDITIONAL-SIGN OBJECT)
    (#\+ (IL:CMLREAD.FEATURE.PARSER (READ-TIME-CONDITIONAL-FEATURE OBJECT)))
    (#\- (NOT (IL:CMLREAD.FEATURE.PARSER (READ-TIME-CONDITIONAL-FEATURE OBJECT)))))
    (READ-TIME-CONDITIONAL-FORM OBJECT)
    *DELETE-FORM*))

```

```

(DEFUN TRANSLATE-UNREADABLE-RTC (OBJECT)
  ;; There just might be something other than a string in this unreadable read-time-conditional; check it out and try to fix it if it's not a string.
  (UNLESS (STRINGP (READ-TIME-CONDITIONAL-FORM OBJECT))
    (CERROR "Replace it with (FORMAT NIL \"~s\")" "Non-string ~s found in an unreadable
        read-time-conditional" (READ-TIME-CONDITIONAL-FORM OBJECT))
    (SETF (READ-TIME-CONDITIONAL-FORM OBJECT)
        (FORMAT NIL "~s" (READ-TIME-CONDITIONAL-FORM OBJECT))))
  ;; Check out the features, just in case someone accidentally put a non-keyword in there
  (WHEN (AND *CONDITIONAL-KEYWORDS* (NON-KEYWORD? (READ-TIME-CONDITIONAL-FEATURE OBJECT)))
    (CERROR "Make all symbols keywords" "~s contains a non-keyword" (READ-TIME-CONDITIONAL-FEATURE OBJECT))
    (SETF (READ-TIME-CONDITIONAL-FEATURE OBJECT)
        (KEYWORDIZE (READ-TIME-CONDITIONAL-FEATURE OBJECT))))
  ;; For paranoia's sake, we check the feature status again as we translate, in case someone changed the *FEATURES* list behind our back.
  (IF (ECASE (READ-TIME-CONDITIONAL-SIGN OBJECT)
    (#\+ (IL:CMLREAD.FEATURE.PARSER (READ-TIME-CONDITIONAL-FEATURE OBJECT)))
    (#\- (NOT (IL:CMLREAD.FEATURE.PARSER (READ-TIME-CONDITIONAL-FEATURE OBJECT)))))
    (WITH-INPUT-FROM-STRING (S (READ-TIME-CONDITIONAL-FORM OBJECT))
        (LET ((F (IL:NLSETQ (READ S))))
            (IF F
                (CAR F)
                (PROGN (IL:PRINTOUT IL:PROMPTWINDOW T "Warning: Problem trying to read conditional
                    expression. Not read.")
                    *DELETE-FORM*)))
            *DELETE-FORM*))
    *DELETE-FORM*))

```

```

(DEFUN KEYWORDIZE (X)
  (COND
    ((CONSP X)
     (MAPCAR #'KEYWORDIZE X))
    ((AND X (SYMBOLP X))
     (IF (KEYWORDP X)
         X
         (LET ((*PACKAGE* (FIND-PACKAGE "KEYWORD")))
             (WITH-INPUT-FROM-STRING (S (SYMBOL-NAME X))
                 (READ S))))))
    (T X)))

```

```

(DEFUN NON-KEYWORD? (X)
  (COND
    ((CONSP X)
     (SOME #'NON-KEYWORD? X))
    ((SYMBOLP X)
     (NOT (KEYWORDP X)))
    (T)))

```

:: Support for #, #,
 :: TRANSLATE-PREFIX-QUOTE is believed unnecessary now; check this...

```

(DEFUN PRINT-PREFIX-QUOTE (OBJECT STREAM DEPTH)
  (IF (EQ *PRINT-CASE* :DOWNCASE)
      (PRINC (PREFIX-QUOTE-PREFIX OBJECT)
             STREAM)
      (PRINC (STRING-UPCASE (PREFIX-QUOTE-PREFIX OBJECT))
             STREAM))
  (PRIN1 (PREFIX-QUOTE-CONTENTS OBJECT)
         STREAM))

```

```

(DEFUN READ-PREFIX-QUOTE (STREAM SUB-CHAR INTEGER)
  "Reads hash quoted forms."
  (WHEN INTEGER (WARN "Spurious integer argument to hash macro ignored.))
  (FUNCCALL (ECASE SUB-CHAR
             (#\ . #'MAKE-HASH-DOT)
             (#\ , #'MAKE-HASH-COMMA)
             ((#\O #\o) #'MAKE-HASH-O)
             ((#\X #\x) #'MAKE-HASH-X)
             ((#\B #\b) #'MAKE-HASH-B))
            :CONTENTS
    (LET ((*READ-BASE* (ECASE SUB-CHAR
                       ((#\ . #\) *READ-BASE*)
                       ((#\B #\b) 2)
                       ((#\O #\o) 8)
                       ((#\X #\x) 16))))
        (READ STREAM NIL T))))

```

```

(DEFUN TRANSLATE-PREFIX-QUOTE (OBJECT) ; This only has to handle numeric base types.
  (PREFIX-QUOTE-CONTENTS OBJECT))

```

```

(DEFUN TRANSLATE-HASH-COMMA (OBJECT)
  (COND
    (*READ-SUPPRESS* NIL)
    (COMPILER::*COMPILER-IS-READING* (COMPILER::MAKE-EVAL-WHEN-LOAD :FORM (PREFIX-QUOTE-CONTENTS OBJECT)))
    ((IL:FETCH (READTABLEP IL:COMMONLISP) IL:OF *READTABLE*)
     (EVAL (PREFIX-QUOTE-CONTENTS OBJECT)))
    (T (IL:EVAL (PREFIX-QUOTE-CONTENTS OBJECT)))))

```

```

(DEFUN TRANSLATE-HASH-DOT (OBJECT)
  (COND
    (*READ-SUPPRESS* NIL)
    ((IL:FETCH (READTABLEP IL:COMMONLISP) IL:OF *READTABLE*)
     (EVAL (PREFIX-QUOTE-CONTENTS OBJECT)))
    (T (IL:EVAL (PREFIX-QUOTE-CONTENTS OBJECT)))))

```

:: Some functions used in the old implementation of #+/#-

```

(DEFUN PRINT-READ-TIME-CONDITIONAL (OBJECT STREAM DEPTH)
  (PRINC #\# STREAM)
  (ETYPESCASE OBJECT
    (HASH-PLUS (PRINC #\+ STREAM))
    (HASH-MINUS (PRINC #\- STREAM)))
  (LET ((*PACKAGE* IL:*KEYWORD-PACKAGE*))
      (PRIN1 (READ-TIME-CONDITIONAL-FEATURE OBJECT)
             STREAM))
  (PRINC " " STREAM)
  ;; JRB - I don't 100% understand why the conditionalization on UNREAD-P is needed here; I DO know, however, that it's causing a conditional
  ;; expression containing a string to lose big time when I dump a file...
  ;; (IF (READ-TIME-CONDITIONAL-UNREAD-P OBJECT) (PRINC (READ-TIME-CONDITIONAL-FORM OBJECT) STREAM) (PRIN1
  ;; (READ-TIME-CONDITIONAL-FORM OBJECT) STREAM))
  (PRIN1 (READ-TIME-CONDITIONAL-FORM OBJECT)
         STREAM))

```

```

(DEFSTRUCT PRESENTATION
  OPS)

```

```
(DEFSTRUCT (PREFIX-QUOTE (:INCLUDE PRESENTATION)
              (:PRINT-FUNCTION PRINT-PREFIX-QUOTE))
  TYPE
  PREFIX
  CONTENTS)
```

```
(DEFSTRUCT (PRESENTATION-OPS (:TYPE LIST))
  READ-MACRO
  TRANSLATOR
  )
; A list with one or two characters followed by a read macro
; function. Installed in the text file readable to read this
; presentation.
; Either a function on PRESENTATION which translates it, or
; :DELETE which always removes it (eg, comments).
```

```
(DEFSTRUCT (READ-TIME-CONDITIONAL (:INCLUDE PRESENTATION)
              (:PRINT-FUNCTION PRINT-READ-TIME-CONDITIONAL))
  FEATURE
  SIGN
  FORM)
```

```
(DEFSTRUCT (SEMICOLON-COMMENT (:TYPE LIST)
              (:PREDICATE NIL)
              )
  (TAG 'IL:*)
  (MARKER 'IL:\;)
  (STRING ""))
; The real one is SEMICOLON-COMMENT-P
```

```
(DEFSTRUCT (SPECIFIER (:TYPE LIST))
  NAME
  FILECOM-P
  FORM-P
  ADD-FORM
  INSTALL-FORM
  PRINT-FILECOM
  )
; A string naming the specifier.
; Predicate on FILECOM, answers true if this is the specifier for
; this filecom.
; Predicate on FORM (a form from the text file), answers true if
; this is the specifier for the definition in FORM.
; Function of FORM and FILECOMS which adds a specifier for
; FORM to the FILECOMS.
; Function of a FORM which installs the definition of FORM (may
; remove presentations). Should not actually install the definition
; if il:dfnflg is il:prop or il:allprop.
; Function of FILECOM and STREAM which prettyprints a form
; onto stream representing the filecom.
```

```
(DEFINE-CONDITION UNKNOWN-FORM (WARNING)
  (FORM)
  (:REPORT (LAMBDA (CONDITION STREAM)
    (FORMAT STREAM "Can't find specifier for form ~s" (UNKNOWN-FORM-FORM CONDITION))))))
```

```
(DEFINE-CONDITION UNKNOWN-SPECIFIER (WARNING)
  (SPECIFIER)
  (:REPORT (LAMBDA (CONDITION STREAM)
    (FORMAT STREAM "Unrecognized filecom ~s" (UNKNOWN-SPECIFIER-SPECIFIER CONDITION))))))
```

```
(DEFVAR *CONDITIONAL-KEYWORDS* T
  "Controls whether TEXTMODULES insists on keywords in features of read-time-conditionals")
```

```
(DEFPARAMETER *CONVERT-LOADED-FILES* T
  "Convert text files loaded by the first one.")
```

```
(DEFPARAMETER *UPGRADE-COMMENT-LENGTH* 40
  "Length at which a single semicolon comment is upgraded to double.")
```

```
(DEFPARAMETER *JOIN-COMMENTS* T
  "Should comments be joined together when read?")
```

```
(DEFPARAMETER *DEFDEFINER-MACROS* NIL
  "Names of macros to change to definers on read.")
```

```
(DEFVAR *DELETE-FORM* "<delete form marker>")
```

```
(DEFCONSTANT COMMENT-LEVEL-MARKERS '(IL:\; IL:|;; IL:|;;; IL:|;;; IL:\|)
```

"Comment markers for available levels."

```
(DEFCONSTANT EOF-MARKER "eof"
  "Unique object passed through read at EOF.")
```

```
(DEFVAR *SEdit-READ-MACROS* (MAKE-HASH-TABLE :TEST #'EQUAL)
  "Presentation read macro entries that need to be added to Sedit Common Lisp readtables")
```

```
(DEFPARAMETER *SPECIFIERS*
  (LIST
    (MAKE-SPECIFIER :NAME "Comment" :FILECOM-P #'SEMICOLON-COMMENT-P :FORM-P #'SEMICOLON-COMMENT-P :ADD-FORM
      #'(LAMBDA (FORM FILECOMS)
        (APPEND FILECOMS (LIST FORM)))
      :INSTALL-FORM
      #'IDENTITY :PRINT-FILECOM #'PPRINT)
    (MAKE-SPECIFIER
      :NAME "eval-when top level form" :FILECOM-P #'(LAMBDA (FILECOM)
        (EQ (FIRST FILECOM)
            'EVAL-WHEN))
      :FORM-P
      #'(LAMBDA (FORM)
        (AND (LISTP FORM)
            (EQ (FIRST FORM)
                'EVAL-WHEN)))
      :ADD-FORM
      #'(LAMBDA (FORM FILECOMS)
        (APPEND FILECOMS (LIST `(EVAL-WHEN , (SECOND FORM)
                                ,@ (LET ((FILECOMS NIL))
                                      (MAPC #'(LAMBDA (FORM)
                                            (SETQ FILECOMS (ADD-FORM FORM FILECOMS))))
                                      (CDDR FORM))
                                FILECOMS))))
      :INSTALL-FORM
      #'(LAMBDA (FORM)
        (WHEN (MEMBER 'EVAL (SECOND FORM))
            (DOLIST (FORM (CDDR FORM))
                (INSTALL-FORM FORM))))
      :PRINT-FILECOM
      #'(LAMBDA (FILECOM STREAM)
        (TERPRI STREAM)
        (PRINC "(eval-when " STREAM)
        (PRIN1 (SECOND FILECOM)
            STREAM)
        (DOLIST (FILECOM (CDDR FILECOM))
            (FRESH-LINE STREAM)
            (PRINT-FILECOM FILECOM STREAM))
        (FRESH-LINE STREAM)
        (PRINC ")" STREAM)))
    (MAKE-SPECIFIER :NAME "Definer" :FILECOM-P #'(LAMBDA (FILECOM)
      (GET (FIRST FILECOM)
          ' :DEFINER-FOR))
      :FORM-P
      #'(LAMBDA (FORM)
        (AND (LISTP FORM)
            (GET (CAR FORM)
                ' :DEFINER-FOR)))
      :ADD-FORM
      #'(LAMBDA (FORM FILECOMS)
        (SETQ FORM (IMPORT-DEFINERS FORM))
        (LET ((IL:DFNFLAG 'IL:PROP))
            (EVAL FORM))
        (APPEND FILECOMS (LIST ` (, (DEFINER-FILECOM FORM)
                                , (NAME-OF FORM))))))
      :INSTALL-FORM
      #'(LAMBDA (FORM)
        (SETQ FORM (IMPORT-DEFINERS FORM))
        (LET ((IL:DFNFLAG T))
            (EVAL FORM)))
      :PRINT-FILECOM
      #'(LAMBDA (FILECOM STREAM)
        (LET ((TYPE (FIRST FILECOM)))
            (DOLIST (NAME (REST FILECOM))
                (FRESH-LINE STREAM)
                (COND
                  ((SEMICOLON-COMMENT-P NAME)
                   (PRINT-FILECOM NAME STREAM))
                  ((IL:GETDEF NAME TYPE NIL ' (IL:NOERROR))
                   (PPRINT (EXPORT-DEFINERS (IL:GETDEF NAME TYPE))
                       STREAM))
                  (T (WARN "Unrecognised drek in ~S filecom ignored:~%~s" TYPE NAME))))))
        (T (WARN "Unrecognised drek in ~S filecom ignored:~%~s" TYPE NAME))))))
    (MAKE-SPECIFIER
      :NAME "Group of definitions (COMS)" :FILECOM-P #'(LAMBDA (FILECOM)
        (EQ (CAR FILECOM)
```

' IL:COMS))

```
:FORM-P
#' (LAMBDA (FORM)
  (EQ (CAR FORM)
    'PROGN))

:ADD-FORM
#' (LAMBDA (FORM FILECOMS)
  (APPEND FILECOMS (LIST '(IL:COMS ,@(LET ((FILECOMS NIL))
    (MAPC #'(LAMBDA (FORM)
      (SETQ FILECOMS (ADD-FORM FORM FILECOMS)))
      (CDR FORM))
    FILECOMS))))))
```

```
:INSTALL-FORM
#' (LAMBDA (FORM)
  (DOLIST (FORM (CDR FORM))
    (INSTALL-FORM FORM)))

:PRINT-FILECOM
#' (LAMBDA (FILECOM STREAM)
  (DOLIST (FILECOM (CDR FILECOM))
    (FRESH-LINE STREAM)
    (PRINT-FILECOM FILECOM STREAM))))
```

(MAKE-SPECIFIER :NAME "Top-level read-time conditional" :FILECOM-P #'(LAMBDA (FORM)
NIL))

```
:FORM-P
#' READ-TIME-CONDITIONAL-P :ADD-FORM #'(LAMBDA (FORM FILECOMS)
  (APPEND FILECOMS
    (LIST '(IL:P (TOP-LEVEL-FORM ,FORM))))))
```

```
:INSTALL-FORM
#' (LAMBDA (FORM)
  (EVAL (TRANSLATE-FORM FORM)))

:PRINT-FILECOM
#' (LAMBDA (FILECOM STREAM)
  (PPRINT (TOP-LEVEL-FORM-FORM FILECOM)
    STREAM)))
```

(MAKE-SPECIFIER :NAME "VARS com translator" :FILECOM-P #'(LAMBDA (FILECOM)
(EQ (CAR FILECOM)
' IL:VARS)))

```
:FORM-P
#' (LAMBDA (FORM)
  NIL)

:PRINT-FILECOM
#' (LAMBDA (FILECOM STREAM)
  (FLET ((TRANSLATE-VARS (FILECOM)
    (ETYPESCASE FILECOM
      (SYMBOL `(DEFPARAMETER ,FILECOM ', (SYMBOL-VALUE FILECOM)))
      (LIST `(DEFPARAMETER ,(FIRST FILECOM) ,(IF (REST FILECOM)
        (SECOND FILECOM)
        NIL))))))
    (DOLIST (SINGLE (REST FILECOM))
      (FRESH-LINE STREAM)
      (PPRINT (TRANSLATE-VARS SINGLE)
        STREAM))))))
```

(MAKE-SPECIFIER :NAME "INITVARS com translator" :FILECOM-P #'(LAMBDA (FILECOM)
(EQ (CAR FILECOM)
' IL:INITVARS)))

```
:FORM-P
#' (LAMBDA (FORM)
  NIL)

:PRINT-FILECOM
#' (LAMBDA (FILECOM STREAM)
  (FLET ((TRANSLATE-INITVARS (FILECOM)
    (ETYPESCASE FILECOM
      (SYMBOL `(DEFVAR ,FILECOM NIL))
      (LIST `(DEFVAR ,(FIRST FILECOM) ,(IF (REST FILECOM)
        (SECOND FILECOM)
        NIL))))))
    (DOLIST (SPEC (REST FILECOM))
      (FRESH-LINE STREAM)
      (PPRINT (TRANSLATE-INITVARS SPEC)
        STREAM))))))
```

(MAKE-SPECIFIER :NAME "CONSTANTS com translator" :FILECOM-P #'(LAMBDA (FILECOM)
(EQ (CAR FILECOM)
' IL:CONSTANTS)))

```
:FORM-P
#' (LAMBDA (FORM)
  NIL)

:PRINT-FILECOM
#' (LAMBDA (FILECOM STREAM)
  (FLET ((TRANSLATE-CONSTANTS (FILECOM)
    (ETYPESCASE FILECOM
      (SYMBOL `(DEFCONSTANT ,FILECOM ', (SYMBOL-VALUE FILECOM)))
      (LIST `(DEFCONSTANT ,(FIRST FILECOM) ,(IF (REST FILECOM)
        (SECOND FILECOM)
        NIL))))))
    (DOLIST (SPEC (REST FILECOM))
      (FRESH-LINE STREAM)
      (PPRINT (TRANSLATE-CONSTANTS SPEC)
        STREAM))))))
```



```

                                STREAM))))))
(MAKE-SPECIFIER
:NAME "PROPS com translator" :FILECOM-P #'(LAMBDA (FILECOM)
                                (EQ (CAR FILECOM)
                                    'IL:PROPS))

:FORM-P
#' (LAMBDA (FORM)
    NIL)
:PRINT-FILECOM
#' (LAMBDA (FILECOM STREAM)
    (FLET ((PPRINT-PROPS (FILECOM)
        (DECLARE (SPECIAL FILE))
        (LET ((PROP (SECOND FILECOM))
              (SYMBOL (FIRST FILECOM)))
            (IF (MEMBER PROP (SYMBOL-PLIST SYMBOL))
                :TEST
                'EQ)
            (UNLESS (AND (EQ FILE SYMBOL)
                          (MEMBER PROP '(IL:FILETYPE IL:MAKEFILE-ENVIRONMENT)
                                      :TEST
                                      'EQ))
                (PPRINT `(SETF (GET ',SYMBOL ',PROP)
                              ',(GET SYMBOL PROP))
                        STREAM)
                (WARN "No ~s property for ~s~%" PROP SYMBOL))))))
        (DOLIST (SPEC (REST FILECOM))
            (FRESH-LINE STREAM)
            (PPRINT-PROPS SPEC))))))
(MAKE-SPECIFIER
:NAME "PROP com translator" :FILECOM-P #'(LAMBDA (FILECOM)
                                (EQ (CAR FILECOM)
                                    'IL:PROP))

:FORM-P
#' (LAMBDA (FORM)
    (AND (LISTP FORM)
         (EQ (FIRST FORM)
             'SETF)
         (LISTP (SECOND FORM))
         (EQ (FIRST (SECOND FORM))
             'GETF)
         (EQL 3 (LENGTH (SECOND FORM)))))

:ADD-FORM
#' (LAMBDA (FORM FILECOMS)
    (APPEND FILECOMS (LIST '(IL:PROP ,(THIRD (SECOND FORM))
                              ,(SECOND (SECOND FORM))))))

:INSTALL-FORM
#' (LAMBDA (FORM)
    (EVAL (TRANSLATE-FORM FORM)))
:PRINT-FILECOM
#' (LAMBDA (FILECOM STREAM)
    (POP FILECOM)
    (LET ((PROPS-SPEC (POP FILECOM))
          (FLET ((PPRINT-PROP (SYMBOL PROP)
              (DECLARE (SPECIAL FILE))
              (IF (MEMBER PROP (SYMBOL-PLIST SYMBOL))
                  :TEST
                  'EQ)
              (UNLESS (AND (EQ FILE SYMBOL)
                            (MEMBER PROP '(IL:FILETYPE IL:MAKEFILE-ENVIRONMENT)
                                        :TEST
                                        'EQ))
                  (PPRINT `(SETF (GET ',SYMBOL ',PROP)
                                ',(GET SYMBOL PROP))
                          STREAM)
                  (WARN "No ~s property for ~s~%" PROP SYMBOL))))))
          (DOLIST (SYMBOL FILECOM)
              (FRESH-LINE STREAM)
              (COND
                ((EQ PROPS-SPEC 'IL:ALL) ; Everything
                 (DO ((TAIL (SYMBOL-PLIST SYMBOL)
                           (CDDR TAIL))
                     ((NULL TAIL))
                     (DECLARE (GLOBAL IL:SYSPROPS))
                     (LET ((PROP (FIRST TAIL))
                           (VALUE (SECOND TAIL)))
                         (WHEN (NOT (MEMBER PROP IL:SYSPROPS :TEST 'EQ))
                             (PPRINT-PROP SYMBOL PROP))))))
                ((LISTP PROPS-SPEC)
                 (DOLIST (PROP PROPS-SPEC)
                     (PPRINT-PROP SYMBOL PROP)))
                ((SYMBOLP PROPS-SPEC)
                 (PPRINT-PROP SYMBOL PROPS-SPEC))
                (T (CERROR "Ignore property" "Bad prop spec ~s in PROPS com" PROPS-SPEC))))))
        (FRESH-LINE STREAM)
        (PPRINT-PROPS SPEC))))))
(MAKE-SPECIFIER
:NAME "FILES com translator" :FILECOM-P #'(LAMBDA (FILECOM)
                                (EQ (CAR FILECOM)
                                    'IL:FILES))

```

```

:FORM-P
#' (LAMBDA (FORM)
      NIL)
:PRINT-FILECOM
#' (LAMBDA (FILECOM STREAM)
      (POP FILECOM)
      (DO ((NOERROR NIL))
          (NULL FILECOM))
      (FRESH-LINE STREAM)
      (LET ((ITEM (CAR FILECOM)))
          (ETYPESPECASE ITEM
            (SYMBOL (PPRINT `(LOAD ', ITEM ,@(WHEN NOERROR
              `(:IF-DOES-NOT-EXIST NIL)))
              STREAM))
            (STRING (PPRINT `(LOAD , ITEM ,@(WHEN NOERROR
              `(:IF-DOES-NOT-EXIST NIL)))
              STREAM))
            (LIST (WHEN (MEMBER 'IL:NOERROR ITEM :TEST 'EQ)
              (SETQ NOERROR T)))))))
(MAKE-SPECIFIER :NAME "Top level form" :FILECOM-P #'TOP-LEVEL-FORM-P :FORM-P #'TRUE :ADD-FORM
  #' (LAMBDA (FORM FILECOMS)
      (CONVERT-LOADED-FILES FORM)
      (APPEND FILECOMS (LIST `(IL:P (TOP-LEVEL-FORM ,FORM))))))
:INSTALL-FORM
#' (LAMBDA (FORM)
      (EVAL (TRANSLATE-FORM FORM)))
:PRINT-FILECOM
#' (LAMBDA (FILECOM STREAM)
      (LET ((FORM (TOP-LEVEL-FORM-FORM FILECOM))
            (FRESH-LINE STREAM)
            (PPRINT FORM STREAM)
            (WHEN (EQ 'IN-PACKAGE (FIRST FORM))
              (EVAL FORM))))))
"A list of all content specifier types for text files."
(UNLESS (FIND-PACKAGE "EMPTY")
  (MAKE-PACKAGE "EMPTY" :USE NIL))
(MAKE-LISP-FILE-READTABLE)
;; PRESENTATIONS handling reading and printing of CL constructs
(DEF-DEFINE-TYPE IL:PRESENTATIONS "presentation types")
(DEFPRESENTATION HASH-BASED-NUMBER :FIELDS (BASE NUMBER)
  :PRINT-FUNCTION PRINT-HASH-BASED-NUMBER
  :READ-MACRO ((#\# #\B READ-HASH-BASED-NUMBER :SEDI)
              (#\# #\O READ-HASH-BASED-NUMBER :SEDI)
              (#\# #\X READ-HASH-BASED-NUMBER :SEDI)
              (#\# #\R READ-HASH-BASED-NUMBER :SEDI))
  :TRANSLATOR TRANSLATE-HASH-BASED-NUMBER)
(DEFPRESENTATION HASH-COMMA :INCLUDE (PREFIX-QUOTE (TYPE :HASH-COMMA)
  (PREFIX "#, "))
  :PRINT-FUNCTION PRINT-PREFIX-QUOTE
  :READ-MACRO (#\# #\, READ-PREFIX-QUOTE)
  :TRANSLATOR TRANSLATE-HASH-COMMA)
(DEFPRESENTATION HASH-DOT :INCLUDE (PREFIX-QUOTE (TYPE :HASH-DOT)
  (PREFIX "#. "))
  :PRINT-FUNCTION PRINT-PREFIX-QUOTE
  :READ-MACRO (#\# #\. READ-PREFIX-QUOTE)
  :TRANSLATOR TRANSLATE-HASH-DOT)
(DEFPRESENTATION HASH-IL-READABLE :INCLUDE READ-TIME-CONDITIONAL
  :PRINT-FUNCTION PRINT-READABLE-READ-TIME-CONDITIONAL
  :READ-MACRO (#\# #\+ READ-READ-TIME-CONDITIONAL)
  :TRANSLATOR TRANSLATE-READABLE-RTC)
(DEFPRESENTATION HASH-IL-UNREADABLE :INCLUDE READ-TIME-CONDITIONAL
  :PRINT-FUNCTION PRINT-UNREADABLE-READ-TIME-CONDITIONAL
  :READ-MACRO (#\# #\~ READ-READ-TIME-CONDITIONAL)
  :TRANSLATOR TRANSLATE-UNREADABLE-RTC)
(DEFPRESENTATION HASH-STAR :FIELDS (VECTOR)
  :PRINT-FUNCTION PRINT-HASH-STAR
  :READ-MACRO (#\# #\* READ-HASH-STAR :SEDI)
  :TRANSLATOR TRANSLATE-HASH-STAR)
(REINSTALL-ADVICE 'REMOVE-COMMENTS :AROUND '(:LAST (TRANSLATE-FORM (CAR ARGLIST))))

```

```

(REINSTALL-ADVICE ' (IL:EVAL :IN IL:\\DO-DEFINE-FILE-INFO)
  :BEFORE
  ' ((:LAST (SETQ IL:U (TRANSLATE-FORM IL:U))))))
(IL:READWISE REMOVE-COMMENTS (IL:EVAL :IN IL:\\DO-DEFINE-FILE-INFO))
;; (IL:FILES IL:SEEDIT-COMMONLISP)
(IL:PUTPROPS LOAD-TEXTMODULE IL:ARGNAMES (NIL (PATHNAME &KEY :MODULE :INSTALL :PACKAGE
  :UPGRADE-COMMENT-LENGTH :JOIN-COMMENTS
  :CONVERT-LOADED-FILES :DEFDEFINER-MACROS)))
(IL:PUTPROPS MAKE-TEXTMODULE IL:ARGNAMES (NIL (IL:MODULE &KEY TYPE PATHNAME IL:FILECOMS IL:WIDTH)))
(IL:PUTPROPS MAKE-SPECIFIER IL:ARGNAMES (NIL (&KEY :NAME :FILECOM-P :FORM-P :ADD-FORM :INSTALL-FORM
  :PRINT-FILECOM)))
(IL:PUTPROPS INSTALL-FORM IL:ARGNAMES (NIL (IL:FORM &OPTIONAL IL:SPECIFIER)))
(IL:PUTPROPS FILECOM-SPECIFIER IL:ARGNAMES (NIL (IL:FILECOM)))
(IL:PUTPROPS FORM-SPECIFIER IL:ARGNAMES (NIL (IL:FORM)))
(IL:PUTPROPS ADD-FORM IL:ARGNAMES (NIL (IL:FORM IL:FILECOMS &OPTIONAL IL:SPECIFIER)))
(IL:PUTPROPS PRINT-FILECOM IL:ARGNAMES (NIL (IL:FILECOM STREAM &OPTIONAL IL:SPECIFIER)))
(IL:PUTPROPS IL:TEXTMODULES IL:FILETYPE :COMPILE-FILE)
(IL:PUTPROPS IL:TEXTMODULES IL:MAKEFILE-ENVIRONMENT (:READTABLE "XCL" :PACKAGE
  (LET ((*PACKAGE* *PACKAGE*))
    (IN-PACKAGE (DEFPACKAGE "TEXTMODULES"
      (:USE "LISP" "XCL")
      (:PREFIX-NAME "TM")
      (:EXPORT "LOAD-TEXTMODULE"
        "MAKE-TEXTMODULE"
        "*SPECIFIERS*"
        "MAKE-SPECIFIER"
        "INSTALL-FORM"
        "FORM-SPECIFIER"
        "FILECOM-SPECIFIER"
        "ADD-FORM"
        "INSTALL-FORM"
        "PRINT-FILECOM"
        "*UPGRADE-COMMENT-LEN
GTH*" "*JOIN-COMMENTS*" "*CONVERT-LOADED-FILES*" "*DEFDEFINER-MACROS*"))))
  (IL:FILESLOAD IL:SEEDIT-COMMONLISP)
  *PACKAGE*)
  :BASE 10))
(IL:PUTPROPS IL:TEXTMODULES IL:COPYRIGHT ("Xerox Corporation" 1987 1988 1989 1990 1991))

```

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DEFPRESENTATION2
