

File created: 7-Apr-2024 17:22:52 {WMEDLEY}<library>TEDIT>TEDIT-FILE.;531

edit by: rmk

changes to: (FNS \TEDIT.GET.CHARLOOKS.LIST \TEDIT.GET.SINGLE.CHARLOOKS \TEDIT.GET.PIECES3)

previous date: 2-Apr-2024 12:15:23 {WMEDLEY}<library>TEDIT>TEDIT-FILE.;529

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

(RPAQQ TEDIT-FILECOMS

```
[ (DECLARE%: EVAL@COMPILE DONTCOPY (CONSTANTS (\PieceDescriptorLOOKS 0)
                                           (\PieceDescriptorOBJECT 1)
                                           (\PieceDescriptorPARA 2)
                                           (\PieceDescriptorPAGEFRAME 3)
                                           (\PieceDescriptorCHARLOOKSLIST 4)
                                           (\PieceDescriptorPARALOOKSLIST 5)
                                           (\PieceDescriptorSAFEOBJECT 6)
                                           (\PieceDescriptorMETAINFO 7))
  (EXPORT (MACROS \SMALLPIN \SMALLPOUT)))
(COMS
;; Public entries
(FNS TEDIT.GET TEDIT.FORMATTEDFILEP TEDIT.FILEDATE TEDIT.INCLUDE TEDIT.RAW.INCLUDE TEDIT.PUT
TEDIT.PUT.STREAM)
(FNS \TEDIT.GET.FOREIGN.FILE \TEDIT.GET.UNFORMATTED.FILE \TEDIT.GET.FORMATTED.FILE
\TEDIT.FORMATTEDSTREAMP \ARBIN \ATMIN \DWIN \STRINGIN \TEDIT.GET.TRAILER \TEDIT.CACHEFILE)
[COMS
;; Until CL:COMPILE-FILE and any others are updated, They should use the public TEDIT.FORMATTEDFILEP
(P (MOVD? '\TEDIT.GET.TRAILER '\TEDIT.FORMATTEDP1]
(FNS \TEDIT.GET.PIECES3 \TEDIT.GET.IDATE3 \TEDIT.MAKE.STRINGPIECE)
(FNS \TEDIT.GET.UNFORMATTED.FILE.XCCS \TEDIT.INTERPRET.XCCS.SHIFTS)
;XCCS
(FNS \TEDIT.GET.UNFORMATTED.FILE.UTF8)
;UTF-8
(FNS \TEDIT.GET.CHARLOOKS.LIST \TEDIT.GET.SINGLE.CHARLOOKS \TEDIT.GET.CHARLOOKS
\TEDIT.GET.PARALOOKS.INDEX \TEDIT.GET.CHARLOOKS.INDEX)
(FNS \TEDIT.GET.PARALOOKS.LIST \TEDIT.GET.SINGLE.PARALOOKS \TEDIT.GET.PARALOOKS)
(FNS \TEDIT.GET.OBJECT))
(COMS
;; Putting (pageframe functions on TEDIT-PAGE)
(FNS \TEDIT.PUT.PCTB \TEDIT.PUT.TRAILER \TEDIT.PUT.PCTB.MERGEABLE \TEDIT.PUT.UTF8.SPLITPIECES
\TEDIT.PUT.PCTB.NEXTNEW \TEDIT.INSERT.NEWPIECES \TEDIT.PUTRESET \ARBOUT \ATMOUT \DWOUT
\STRINGOUT)
(FNS \TEDIT.PUT.CHARLOOKS.LIST \TEDIT.PUT.SINGLE.CHARLOOKS \TEDIT.PUT.CHARLOOKS
\TEDIT.PUT.CHARLOOKS1 \TEDIT.PUT.OBJECT)
(FNS \TEDIT.PUT.PARALOOKS.LIST \TEDIT.PUT.SINGLE.PARALOOKS \TEDIT.PUT.PARALOOKS))
(GLOBALVARS TEDIT.INPUT.FORMATS *TEDIT-FILE-READTABLE*)
(FNS TEDITFROMLISPSOURCE)
(ADVARS (TEDIT.INPUT.FORMATS (LISPSOURCEFILEP TEDITFROMLISPSOURCE)))
(INITVARS
; For consistent reading and writing of info on TEdit files.
(*TEDIT-FILE-READTABLE* (COPYREADTABLE \ORIGREADTABLE]))
```

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

(RPAQQ \PieceDescriptorLOOKS 0)

(RPAQQ \PieceDescriptorOBJECT 1)

(RPAQQ \PieceDescriptorPARA 2)

(RPAQQ \PieceDescriptorPAGEFRAME 3)

(RPAQQ \PieceDescriptorCHARLOOKSLIST 4)

(RPAQQ \PieceDescriptorPARALOOKSLIST 5)

(RPAQQ \PieceDescriptorSAFEOBJECT 6)

(RPAQQ \PieceDescriptorMETAINFO 7)

```
(CONSTANTS (\PieceDescriptorLOOKS 0)
            (\PieceDescriptorOBJECT 1)
            (\PieceDescriptorPARA 2)
            (\PieceDescriptorPAGEFRAME 3)
            (\PieceDescriptorCHARLOOKSLIST 4)
            (\PieceDescriptorPARALOOKSLIST 5)
            (\PieceDescriptorSAFEOBJECT 6)
            (\PieceDescriptorMETAINFO 7))
)
```

:: FOLLOWING DEFINITIONS EXPORTED

(DECLARE%: EVAL@COMPILE

```
(PUTPROPS \SMALLPIN MACRO (OPENLAMBDA (STREAM)
  (SIGNED (create WORD
    HIBYTE _ (\BIN STREAM)
    LOBYTE _ (\BIN STREAM)
    BITSPERWORD)))
```

```
(PUTPROPS \SMALLPOUT MACRO (OPENLAMBDA (STREAM W) ; Signed smallp, unlike \WOUT
  (\BOUT STREAM (LOGAND 255 (LRSH W 8)))
  (\BOUT STREAM (LOGAND W 255)))
)
)
```

;; END EXPORTED DEFINITIONS

;; Public entries

(DEFINEQ

(TEDIT.GET

[LAMBDA (TSTREAM FILE UNFORMATTED? PROPS)

```
; Edited 17-Mar-2024 18:17 by rmk
; Edited 15-Mar-2024 13:34 by rmk
; Edited 21-Jan-2024 23:13 by rmk
; Edited 22-Sep-2023 20:16 by rmk
; Edited 18-Sep-2023 16:41 by rmk
; Edited 9-Sep-2023 17:24 by rmk
; Edited 19-May-2001 11:43 by rmk:
; Edited 19-Apr-93 13:12 by jds
```

```
;; A new file overwrites the textstream, textobj, and window of the one being edited. We have to make a new TEXTOBJ because we don't want the
;; new file to inherit random properties (like READONLY etc. (Not sure about BEING-EDITED, that may only have been used for window-creation)
```

```
(SETQ TSTREAM (TEXTSTREAM TSTREAM))
(PROG ((TEXTOBJ (TEXTOBJ TSTREAM))
  FSTREAM GETFN MAINWINDOW BEINGEDITED PROC NTSTREAM NTEXTOBJ TEDITCREATED BEING-EDITED)
  (CL:WHEN [AND (GETTOBJ TEXTOBJ \DIRTY)
    (PROGN (TEDIT.PROMPTCLEAR TEXTOBJ)
      (NOT (MOUSECONFIRM "Not saved yet; LEFT go Get anyway." T (GETTOBJ TEXTOBJ
        PROMPTWINDOW]
        PROMPTWINDOW])

    ;; Only do the GET if he knows he'll zorch himself.

    (RETURN))
  (CL:UNLESS FILE
    [SETQ FILE (\TEDIT.MAKEFILENAME (TEDIT.GETINPUT TEXTOBJ "GET from: " (OR (GETTEXTPROP TEXTOBJ
      'LASTGETFILENAME)
      (\TEXTSTREAM.FILENAME
        TEXTOBJ)])

    (CL:WHEN [AND (SETQ GETFN (GETTEXTPROP TEXTOBJ 'GETFN))
      (EQ 'DON'T (APPLY* GETFN (GETTOBJ TEXTOBJ STREAMHINT)
        (FULLNAME FSTREAM)
        'BEFORE] ; He doesn't want this document put. Bail out.

    (RETURN))

;;
```

```
(SETQ FSTREAM (\TEDIT.OPENTEXTFILE FILE))
(CL:UNLESS (GETSTREAM FSTREAM 'INPUT T) ; Didn't find it but save the name as a hint for the next try
  (PUTTEXTPROP TEXTOBJ 'LASTGETFILENAME FILE)
  (TEDIT.PROMPTPRINT TEXTOBJ (CONCAT FILE " not found--aborted")
    T)
  (RETURN NIL))
(RESETLST
  (RESETSAVE (TTYDISPLAYSTREAM (OR (AND (NEQ 'DON'T (GETTOBJ TEXTOBJ PROMPTWINDOW))
    (GETTOBJ TEXTOBJ PROMPTWINDOW))
    PROMPTWINDOW)))

;; New file is good, clean out the old stuff
(\TEDIT.SHOWSEL (TEXTSEL TEXTOBJ)
  NIL)
(\TEDIT.TEXTCLOSEF TEXTOBJ) ; Close the old files, still in TXTFILE
;;
;; Open a textstream NTSTREAM on the new file, then reconnect its textobj to the old TSTREAM and window
(SETQ MAINWINDOW (\TEDIT.MAINW TEXTOBJ))
(SETQ BEING-EDITED (GETTEXTPROP TEXTOBJ 'BEING-EDITED))
(CL:WHEN MAINWINDOW
  (SETQ TEDITCREATED (WINDOWPROP MAINWINDOW 'TEDITCREATED)))
(CL:WHEN UNFORMATTED?
  (push PROPS 'CLEARGET T))
(SETQ NTSTREAM (OPENTEXTSTREAM FSTREAM MAINWINDOW NIL NIL PROPS))
(SETQ NTEXTOBJ (fetch (TEXTSTREAM TEXTOBJ) of NTSTREAM))
(replace (TEXTSTREAM TEXTOBJ) of TSTREAM with NTEXTOBJ)
(SETTOBJ NTEXTOBJ STREAMHINT TSTREAM)
(\TEDIT.TEXTSETFILEPTR TSTREAM 0)
(CL:WHEN MAINWINDOW
  (\TEDIT.UPDATE.TITLE NTEXTOBJ)
  (WINDOWPROP MAINWINDOW 'TEDITCREATED TEDITCREATED))
```

```

                                ; To keep the default region
      (WINDOWPROP MAINWINDOW 'TEXTSTREAM TSTREAM))
      (CL:WHEN BEING-EDITED (TEDIT TSTREAM))
                                ; find and set the title
      (CL:WHEN GETFN
        (APPLY* GETFN TSTREAM (FULLNAME (GETTOBJ TEXTOBJ TXTFILE))
          'AFTER))
      (RETURN TSTREAM))

```

(TEDIT.FORMATTEDFILEP

```

[LAMBDA (FILE)
                                ; Edited 26-Mar-2024 22:10 by rmk
                                ; Edited 18-Jan-2024 10:29 by rmk
                                ; Edited 13-Jan-2024 11:57 by rmk
                                ; Edited 12-Jul-2023 23:35 by rmk

```

;; If FILE is a Tedit formatted stream or the name of a Tedit formatted file, returns a pair consisting of its version number and piececount.
 ;; Piececount is probably useless.

```

      (CL:WHEN FILE
        (RESETLST
          (LET ((STREAM (GETSTREAM FILE 'INPUT T)))
            [if STREAM
              then [RESETSAVE (GETFILEPTR FILE)
                             `(PROGN (SETFILEPTR ,FILE OLDVALUE)
                                (RESETSAVE (SETQ STREAM (OPENSTREAM (CL:IF (STREAMP FILE)
                                   (FULLNAME FILE)
                                   FILE)
                                   'INPUT))
                                `(PROGN (CLOSEF? OLDVALUE)
                                   (\TEDIT.GET.TRAILER STREAM)))))]
              else (RESETSAVE (SETQ STREAM (OPENSTREAM (CL:IF (STREAMP FILE)
                                   (FULLNAME FILE)
                                   FILE)
                                   'INPUT))
                                `(PROGN (CLOSEF? OLDVALUE)
                                   (\TEDIT.GET.TRAILER STREAM)))))]

```

(TEDIT.FILEDATE

```

[LAMBDA (FILE INTEGER)
                                ; Edited 26-Mar-2024 21:37 by rmk
                                ; Edited 18-Jan-2024 10:26 by rmk
                                ; Edited 13-Jan-2024 10:20 by rmk
                                ; Edited 19-Dec-2023 10:13 by rmk
                                ; Edited 6-Dec-2023 20:11 by rmk
                                ; Edited 28-Sep-2023 22:47 by rmk

```

;; If FILE is a Tedit-format file, returns its save date if it is stamped in the file, otherwise its file-system creation date as an integer or string. NIL if
 ;; not a Tedit file.

;; FILE must be random access. If not, then presumably we first have to fetch the last 5+4+8 bytes to someplace else.

```

      (LET [(IDATE (CAR (LAST (TEDIT.FORMATTEDFILEP FILE)
        (CL:WHEN IDATE
          (CL:IF INTEGER
            IDATE
            (GDATE IDATE)))))]

```

(TEDIT.INCLUDE

```

[LAMBDA (TSTREAM FILE START END SAFE PLAINTEXT)
                                ; Edited 17-Mar-2024 12:06 by rmk
                                ; Edited 16-Feb-2024 23:54 by rmk
                                ; Edited 13-Jan-2024 09:39 by rmk
                                ; Edited 12-Nov-2023 12:29 by rmk
                                ; Edited 23-Jul-2023 15:30 by rmk
                                ; Edited 16-Jul-2023 10:18 by rmk
                                ; Edited 21-Jun-2023 17:46 by rmk
                                ; Edited 19-May-2001 11:43 by rmk:
                                ; Edited 1-Jun-93 11:31 by sybalsky:mv:envos

```

;; Obtain a file name, and include that file's contents at the place where the caret is.

;; This is a documented entry, but SAFE wasn't described there and I (RMK) added PLAINTEXT to collapse with TEDIT.INCLUDE.RAW.

;; Returns the length of the input, if the insertion happened, NIL if there was no place to put it.

;;

;; This assumes that START and END are file positions (defaulting to 0 and length), not character numbers.

;;

;; If SAFE, the caller is taking responsibility for closing FILE when its contents are no longer needed (e.g. DOC-OBJECTS inclusions). Otherwise,
 ;; the contents are copied to a NODIRCORE that is owned by this TSTREAM, and then FILE is closed here if it wasn't previously open. (This may
 ;; not be accurate, unless FILE was actually an open stream and not a name?)

```

      (CL:UNLESS (\TEDIT.READONLY TSTREAM)
        (PROG ((TEXTOBJ (TEXTOBJ TSTREAM))
          TSEL FSEL WASOPEN FTSTREAM NDCSTREAM (FROMFILE FILE))
          (SETQ TSEL (TEXTSEL TEXTOBJ))
          (CL:UNLESS (GETSEL TSEL SET)
            (TEDIT.PROMPTPRINT TEXTOBJ "Please select a destination for the included text" T)
            (RETURN NIL))

```

;; We know where the new text is supposed to go. Where is it coming from?

```

      (CL:UNLESS FROMFILE
        (SETQ FROMFILE (\TEDIT.MAKEFILENAME (TEDIT.GETINPUT TEXTOBJ "Name of the file to include: ")
          )
        (CL:UNLESS FROMFILE
          (TEDIT.PROMPTPRINT TEXTOBJ "No file to include--aborted]" T)
          (RETURN)))

```

(TEDIT.RAW.INCLUDE

```
(TEDIT.INCLUDE TSTREAM INFILE START END SAFE T))
```

```
; Edited 31-Mar-2024 23:54 by rmk
; Edited 7-Feb-2024 13:31 by rmk
; Edited 4-Feb-2024 00:10 by rmk
; Edited 22-Dec-2023 10:41 by rmk
; Edited 19-Dec-2023 10:18 by rmk
; Edited 21-Jun-99 19:02 by rmk:
```

; Edited 19-Apr-93 13:04 by jds

;; If the guy was editing a file, make a new updated version; else, ask for a file name

;; If FILE is specd, it's used; else the user must give us one

;; Returns the destination stream open for input.

```

(CL:UNLESS (\TEDIT.READONLY TSTREAM)
  (RESETLST
    (PROG ((TEXTOBJ (TEXTOBJ TSTREAM))
      (CHARSTREAM NEWPIECES PUTFN OLDEXTFORMAT NEWEXTFORMAT)
      (CL:WHEN (AND (SETQ PUTFN (GETTEXTPROP TEXTOBJ 'PUTFN))
        (EQ (APPLY* PUTFN TSTREAM (FULLNAME FILE)
          'BEFORE)
          'DON'T)))
        ;; PUTFN BEFORE says it can't be saved, even though asked. Let him know
        (TEDIT.PROMPTPRINT TEXTOBJ "This document cannot be saved" T T)
        (RETURN NIL))
      (CL:UNLESS (OR (IGREATERP (TEXTLEN TEXTOBJ)
        0)
        (TEDIT.GETINPUT TEXTOBJ "Document is empty. Save anyway? " "Yes")))
        (RETURN NIL))
      (if (AND (STREAMP FILE)
        (\GETSTREAM FILE 'OUTPUT T))
        then (SETQ CHARSTREAM FILE)
        else (CL:UNLESS UNFORMATTED?
          (if (\TEDIT.FORMATTEDSTREAMP TEXTOBJ)
            then [SETQ UNFORMATTED? (AND (GETTEXTPROP TEXTOBJ 'CLEARGET)
              (EQ 'N (U-CASE (NTHCHAR (TEDIT.GETINPUT TEXTOBJ
                "Convert plaintext
                to formatted file? "
                "No"))
              1])
            else (SETQ UNFORMATTED? T)))
          (SELECTQ FILE
            (NIL (CL:UNLESS FORCENEW
              ; ForcENEW for templates?
              (CL:WHEN [AND (TEXTPROP TEXTOBJ 'TEMPLATE)
                (EQ 'N (U-CASE (NTHCHAR (TEDIT.GETINPUT TEXTOBJ
                  "Overwrite template? " "No"))
                  1])
                (SETQ FORCENEW 'DETEMPLATE)))
              [SETQ FILE (\TEDIT.MAKEFILENAME (TEDIT.GETINPUT TEXTOBJ "PUT to: "
                (CL:UNLESS FORCENEW (
                  \TEXTSTREAM.FILENAME
                  TEXTOBJ
                  UNFORMATTED?))
                (T (SETQ FILE (\TEXTSTREAM.FILENAME TEXTOBJ UNFORMATTED?)))
                NIL)
              (CL:UNLESS FILE
                ; No file to put to.
                (TEDIT.PROMPTPRINT TEXTOBJ "No output file--aborted" T T)
                (RETURN)))
            ;;
            ;; Ready to save. IF the external format changes, we don't want to update the current textstream. Unless we figure out what the new
            ;; proper piecetypes should be (FATFILE2, UTF8...).
            [SETQ OLDEXTFORMAT (AND (STREAMP (FGETTOBJ TEXTOBJ TXTFILE))
              (STREAMPROP (FGETTOBJ TEXTOBJ TXTFILE)
                'FORMAT)
              (SETQ NEWEXTFORMAT (OR FORMAT (GETTEXTPROP TEXTOBJ 'OUTPUT-FORMAT)
                OLDEXTFORMAT :DEFAULT))
              [RESETSAVE [SETQ CHARSTREAM (OPENSTREAM FILE 'OUTPUT 'NEW
                \([TYPE ,(CL:IF UNFORMATTED?
                  'TEXT
                  'BINARY)]
                (LINELENGTH T)
                (FORMAT ,NEWEXTFORMAT)
                ' (AND RESETSTATE (DELFILE (CLOSE? OLDVALUE)
                  [RESETSAVE (\TEDIT.PUTRESET (CONS (THIS.PROCESS)
                    'DON'T)
                    (TEDIT.PROMPTPRINT TEXTOBJ (CONCAT "Putting to file " (FULLNAME CHARSTREAM)
                      "...")
                      T)
                    ;;
                    ;; CHARSTREAM is open, we're ready to go.
                    ;; We don't know how to decide that the user doesn't want to continue editing and therefore doesn't need the pieces to be updated to
                    ;; the new file. The stream itself may be used in the future, even if right now there is no process or window
                    (SETQ CHARSTREAM (TEDIT.PUT.STREAM TEXTOBJ CHARSTREAM UNFORMATTED? NIL T))
                    ;; The file is written, nothing can be lost. CHARSTREAM isn't closed yet
                    ;;
                    ;; TEDIT.PUT.FINISHEDFORMS is not documented. Are we supposed to supply some defined specvars?
                    (for FORM in (GETTEXTPROP TEXTOBJ 'TEDIT.PUT.FINISHEDFORMS) do (EVAL FORM))
                    (CL:WHEN PUTFN
                      (APPLY* PUTFN TSTREAM (FULLNAME CHARSTREAM))

```

```

        'AFTER))
;;
;;
(TEDIT.PROMPTPRINT TEXTOBJ "done")
;;
(CL:WHEN (EQ FORCENEW 'DETEMPLATE)
  (TEXTPROP TEXTOBJ 'TEMPLATE NIL))
(RETURN CHARSTREAM)))])

```

(TEDIT.PUT.STREAM

```
[LAMBDA (TSTREAM DESTSTREAM UNFORMATTED? EXTERNALFORMAT CONTINUE)
```

```

; Edited 19-Mar-2024 21:38 by rmk
; Edited 17-Mar-2024 17:29 by rmk
; Edited 7-Feb-2024 12:41 by rmk
; Edited 4-Feb-2024 00:19 by rmk
;

```

```
;; If UNFORMATTED?, the FORMATSTREAM portion of the Tedit stream is discarded, so only the plaintext character portion appears in
;; DESTSTREAM.
```

```
;; Saves the contents of TSTREAM on DESTSTREAM, starting at DESTSTREAM's current file position. If DESTSTREAM is not a stream open for
;; output, an attempt will be made to open it. Either way, if EXTERNALFORMAT is provided, the stream will be written with that format. Otherwise,
;; the current format of the stream (or the current default format, if a file) will be used.
```

```
;; If not CONTINUE and DESTSTREAM is opened here, it will be closed and its filename will be returned. Otherwise, the DESTSTREAM will be
;; left in its original mode and positioned after the last byte written.
```

```

(RESETLST
  (LET ((TEXTOBJ (TEXTOBJ TSTREAM))
        NEWPIECES ENDPTR OPENEDHERE)
    (CL:UNLESS (\GETSTREAM DESTSTREAM 'OUTPUT T)
      [RESETSAVE [SETQ DESTSTREAM (OPENSTREAM DESTSTREAM 'OUTPUT NIL '(LINELENGTH T)
        ' (AND RESETSTATE (DELFILE (CLOSEF? OLDVALUE)
          (SETQ OPENEDHERE T))
        (CL:WHEN EXTERNALFORMAT
          (STREAMPROP DESTSTREAM 'FORMAT EXTERNALFORMAT))
        (SETQ NEWPIECES (TEDIT.PUT.PCTB TEXTOBJ DESTSTREAM UNFORMATTED? CONTINUE))
        (if CONTINUE
          then (SETQ ENDPTR (GETFILEPTR DESTSTREAM))
              (CLOSEF? DESTSTREAM)
              (CL:UNLESS UNFORMATTED?
                (SETFILEINFO (FULLNAME DESTSTREAM)
                  'ICREATIONDATE
                  (TEDIT.FILEDATE DESTSTREAM T)))
              (SETQ DESTSTREAM (OPENSTREAM DESTSTREAM 'INPUT))
              (\TEDIT.INSERT.NEWPIECES DESTSTREAM TEXTOBJ NEWPIECES)
              (SETFILEPTR DESTSTREAM ENDPTR)
              (\PEEKBIN DESTSTREAM T)
              (CL:WHEN (FGETTOBJ TEXTOBJ TXTFILE)
                (CLOSEF? (FGETTOBJ TEXTOBJ TXTFILE)))
              (FSETTOBJ TEXTOBJ TXTFILE DESTSTREAM)
              (FSETTOBJ TEXTOBJ \XDIRTY NIL)
              (\TEDIT.UPDATE.TITLE TEXTOBJ DESTSTREAM)
              ;; Wipe out previous history: Put is not undoable.
              (\TEDIT.HISTORYADD TEXTOBJ (create TEDIT.HISTORYEVENT
                THACTION _ :Put))
              DESTSTREAM
            elseif OPENEDHERE
              then (OR (CLOSEF? DESTSTREAM)
                (FULLNAME DESTSTREAM))
            else DESTSTREAM))])

```

```
)
```

```
(DEFINEQ
```

(TEDIT.GET.FOREIGN.FILE

```
[LAMBDA (TEXT TSTREAM START END PROPS)
```

```

; Edited 17-Mar-2024 00:21 by rmk
; Edited 22-Oct-2023 20:40 by rmk
; Edited 18-Sep-2023 16:40 by rmk
; Edited 10-Aug-2023 17:26 by rmk
; Edited 6-Sep-2022 12:18 by rmk
; Edited 26-Aug-2022 08:43 by rmk
; Edited 25-Jul-2022 21:21 by rmk

```

```
;; If TEXT is recognized as a file in a user format, convert it into a new text stream. It could be that the foreign file is coming from a TEDIT.GET on
;; an existing stream. There may be a window attached to TSTREAM, and that's where the edit will eventually take place. Its dimensions are
;; available, e.g. for width and height, but it may not yet have been initialized for TEDIT (because the source text is being installed here).
```

```
;;
;; The foreign function returns a textstream FSTREAM. If FSTREAM=TSTREAM then we assume that the foreign function filled in everything
;; completely. If it is a different stream, then we assume that its pieces are safe and its looks are good, we copy that information back into
;; TSTREAM.
```

```
;;
;; Either way, the foreign function guarantees that file pieces, if any, are safe wrt buffer boundaries.
```

```

(LET (USERFILEFORMAT USERTEMP FSTREAM FTEXTOBJ (TTEXTOBJ (fetch (TEXTSTREAM TEXTOBJ) of TSTREAM)))
;; Do the predicate and the converter agree that they can handle this?
(CL:WHEN (AND (SETQ USERFILEFORMAT (for FILETYPE in TEDIT.INPUT.FORMATS
                                     when (SETQ USERTEMP (APPLY* (CAR FILETYPE)
                                                                    TEXT TSTREAM PROPS))
                                     do (RETURN FILETYPE)))
            (SETQ FSTREAM (APPLY* (CADR USERFILEFORMAT)
                                  TEXT TSTREAM PROPS USERTEMP START END))
            (TEXTSTREAMP FSTREAM))
      ; Return NIL if we couldn't convert
      (CL:UNLESS (EQ TSTREAM FSTREAM)
        (SETQ FTEXTOBJ (TEXTOBJ FSTREAM))
        (\TEDIT.INSERTPIECES (\TEDIT.FIRSTPIECE FTEXTOBJ)
                              NIL TTEXTOBJ)
        (FSETTOBJ TTEXTOBJ LASTPIECE (FGETTOBJ FTEXTOBJ LASTPIECE))
        ; Last piece have different looks
        (FSETTOBJ TTEXTOBJ TXTPAGEFRAMES (FGETTOBJ FTEXTOBJ TXTPAGEFRAMES))
        (FSETTOBJ TTEXTOBJ FMTSPEC (FGETTOBJ FTEXTOBJ FMTSPEC))
        (FSETTOBJ TTEXTOBJ DEFAULTCHARLOOKS (FGETTOBJ FTEXTOBJ DEFAULTCHARLOOKS)))
      TSTREAM))

```

(\TEDIT.GET.UNFORMATTED.FILE

[LAMBDA (STREAM TSTREAM START END PROPS)

```

; Edited 17-Mar-2024 00:21 by rmk
; Edited 5-Feb-2024 09:26 by rmk
; Edited 21-Jan-2024 09:42 by rmk
; Edited 29-Dec-2023 11:52 by rmk
; Edited 27-Dec-2023 13:33 by rmk
; Edited 22-Oct-2023 22:59 by rmk
; Edited 12-Sep-2023 16:45 by rmk
; Edited 3-Aug-2023 22:04 by rmk
; Edited 3-May-2023 17:38 by rmk
; Edited 26-Apr-2023 14:09 by rmk

```

```

(RESETLST
[RESETSAVE NIL `(STREAMPROP ,STREAM ENDOFSTREAMOP ,(STREAMPROP STREAM 'ENDOFSTREAMOP
                                                                (FUNCTION NIL))]
(\SETFILEPTR STREAM START)
(LET ((TEXTOBJ (fetch (TEXTSTREAM TEXTOBJ) of TSTREAM))
      (FORMAT (STREAMPROP STREAM 'FORMAT))
      (DEFAULTCHARLOOKS DEFAULTPARALOOKS PIECES)
      (PUTTEXTPROP TEXTOBJ 'CLEARGET T)
      (SETQ DEFAULTCHARLOOKS (GETTOBJ TEXTOBJ DEFAULTCHARLOOKS))
      (SETQ DEFAULTPARALOOKS (GETTOBJ TEXTOBJ FMTSPEC))
      (CL:WHEN (AND (EQ FORMAT :STRING)
                    (\IOMODEP STREAM 'OUTPUT T))
        (SETQ STREAM (COPYFILE STREAM '{NODIRCORE})))
      [SETQ PIECES
        (SELECTQ FORMAT
          (:XCCS (\TEDIT.GET.UNFORMATTED.FILE.XCCS STREAM START END DEFAULTCHARLOOKS DEFAULTPARALOOKS))
          (:UTF-8 (\TEDIT.GET.UNFORMATTED.FILE.UTF8 STREAM START END DEFAULTCHARLOOKS DEFAULTPARALOOKS))
          (:STRING (CL:WHEN (\IOMODEP STREAM 'OUTPUT T)
                            ; Protect against somebody smashing the string. (Should also protect other files, but...)
                            (SETQ STREAM (COPYFILE STREAM '{NODIRCORE})))
                    ; String format is known to be fat. Eventually it should be sufficient to know the bytesperchar of the piece to figure
                    ; out the PFILEPOS byte pointers, and just use the generic \OUTCHAR to get the characters.
                    (create PIECE
                           PCONTENTS _ STREAM
                           PFPOS _ START
                           PLEN _ (FOLDLO (IDIFFERENCE END START)
                                           2)
                           PLOOKS _ DEFAULTCHARLOOKS
                           PPARALAST _ NIL
                           PPARALOOKS _ DEFAULTPARALOOKS
                           PTYPE _ FATFILE2.PTYPE
                           PBYTESPERCHAR _ 2))
          (create PIECE
                  PCONTENTS _ STREAM
                  PFPOS _ START
                  PLEN _ (IDIFFERENCE END START)
                  PLOOKS _ DEFAULTCHARLOOKS
                  PPARALAST _ NIL
                  PPARALOOKS _ DEFAULTPARALOOKS
                  PTYPE _ THINFILE.PTYPE
                  PBYTESPERCHAR _ 1
                  PBINABLE _ (fetch (STREAM BINABLE) of STREAM)
                  (\TEDIT.INSERTPIECES PIECES NIL TEXTOBJ))))))

```

(\TEDIT.GET.FORMATTED.FILE

[LAMBDA (TEXT TSTREAM START END PROPS)

```

; Edited 17-Mar-2024 00:21 by rmk
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```

; Edited 11-Jun-99 14:37 by rmk:
; Edited 19-Apr-93 13:46 by jds

;; TEXT is an open stream that knows its external format, TEXTOBJ is the TEXTOBJ to be filled in. If specified, START and END define the byte
;; positions in TEXT to be included
;; If TSTREAM is a formatted file, it is included in TEXTOBJ and TEXTOBJ is returned, otherwise NIL

```
(LET ((TEXTOBJ (fetch (TEXTSTREAM TEXTOBJ) of TSTREAM))
      (TRAILER (\TEDIT.GET.TRAILING TEXT END))
      PCCOUNT IDATE PC)
  (CL:WHEN TRAILER
    (SETTOBJ TEXTOBJ TXTPAGEFRAMES NIL)
    (SETQ PCCOUNT (CADDR TRAILER))
    (SELECTQ (CADDR TRAILER)
      (3 ; Version 3
        (CL:WHEN (\TEDIT.GET.IDATE3 TEXT END) ; IDATE means 3.1, LINELEADING above-hack.
          (FSETTOBJ TEXTOBJ TXTLINELEADINGABOVE T))
        (\TEDIT.INSERTPIECES (\TEDIT.GET.PIECES3 TEXT TEXTOBJ PCCOUNT START END)
          NIL TEXTOBJ))
      (2 ; Version 2; obsoleted 5/22/85
        (\TEDIT.GET.PCTB2 TEXT TEXTOBJ PCCOUNT START END))
      (1 ; Version 1; obsoleted at INTERMEZZO release 2/85
        (\TEDIT.GET.PCTB1 TEXT TEXTOBJ PCCOUNT START END))
      (0 ; VERSION 0
        (\TEDIT.GET.PCTB0 TEXT TEXTOBJ (CADR PCCOUNT)
          PCCOUNT START END))
        (SHOULDN'T "File format version incompatible with this version of TEdit."))
    (CL:WHEN (SETQ PC (PREVPIECE (\TEDIT.LASTPIECE TEXTOBJ)))
      (FSETPC PC PPARALAST T))
    (\TEDIT.TRANSLATE.ASCIICHARS TEXTOBJ NIL)
    TEXTOBJ))
```

(\TEDIT.FORMATTEDSTREAMP

[LAMBDA (TSTREAM)

; Edited 16-Mar-2024 10:03 by rmk
; Edited 22-Sep-2023 20:17 by rmk
; Edited 15-Sep-2023 00:09 by rmk
; Edited 15-Aug-2023 17:35 by rmk
; Edited 16-Sep-2022 21:00 by rmk
; Edited 1-Sep-2022 08:54 by rmk
; Edited 19-Apr-93 11:57 by jds

;; Test to see if this stream's text would need a TEdit-format file (T) or is just plain text (NIL)

```
(LET ((TEXTOBJ (TEXTOBJ TSTREAM))
      (for PC (FORMATLEVEL _ 0)
        (DEFAULTCLOOKS _ (FGETTOBJ TEXTOBJ DEFAULTCHARLOOKS))
        (DEFAULTPLOOKS _ (FGETTOBJ TEXTOBJ FMTSPEC))
        (TENTATIVE _ (GETTEXTPROP TEXTOBJ 'TEDIT.TENTATIVE))
        inpieces
        (\TEDIT.FIRSTPIECE TEXTOBJ) do [COND
          ((EQ OBJECT.PTYPE (PTYPE PC))
            ; OBJECTS require the special format
            (SETQ FORMATLEVEL 4)
            (GO $$OUT))
          ([OR (AND (PPARALAST PC)
                    (NEXTPIECE PC))
              (NOT (\TEDIT.EQFMTSPEC DEFAULTPLOOKS (PPARALOOKS PC))
                ; A paragraph break not at the end, or a new plook
                (SETQ FORMATLEVEL (IMAX FORMATLEVEL 3)))
              ((OR (NOT (\TEDIT.EQCLOOKS DEFAULTCLOOKS (PLOOKS PC)))
                    (AND TENTATIVE (PNEW PC)))
                ; Change in font, size, etc.
                (SETQ FORMATLEVEL (IMAX FORMATLEVEL 2)))
              (MEMB (PTYPE PC)
                (CONSTANT (LIST FATFILE2.PTYPE FATSTRING.PTYPE)))
                ; 16-bit chars in the piece
                (SETQ FORMATLEVEL (IMAX FORMATLEVEL 1))
```

finally ;; 1 originally meant NSCHARS. But that's not a "look", just an external format issue.

```
(RETURN (SELECTQ FORMATLEVEL
  (0 NIL)
  (2 'CHARLOOKS)
  (3 'PARALOOKS)
  (4 'IMAGEOBJ)
  NIL))
```

(\ARBIN

[LAMBDA (STREAM)

; Edited 19-Dec-2023 10:13 by rmk
(* jds "13-Nov-86 20:21")
; Read an arbitrary object from a file, parse it, and return it.

```
(PROG ((LEN (\WIN STREAM))
      USERSTR)
  (COND
    ((NOT (ZEROP LEN))
      (SETQ USERSTR (OPENSTRINGSTREAM (\STRINGIN STREAM LEN)
        'INPUT))
      (RETURN (PROG1 (READ USERSTR *TEDIT-FILE-READTABLE*)
```


(CLOSEF? USERSTR))

(\ATMIN

[LAMBDA (STREAM)

; Edited 19-Dec-2023 10:13 by rmk
; Edited 1-Aug-2022 12:04 by rmk
(* jds " 3-Apr-84 10:41")

```
(PROG ((LEN (\WIN STREAM)))
  (RETURN (COND
    ((ZEROP LEN)
     NIL)
    (T (PACK (for I from 1 to LEN collect (CHARACTER (BIN STREAM))))
```

(\DWIN

[LAMBDA (FILE)

; Edited 1-Aug-2022 12:04 by rmk
(* jds " 3-JAN-83 16:08")

```
(IPLUS (LLSH (BIN FILE)
  24)
  (LLSH (BIN FILE)
  16)
  (LLSH (BIN FILE)
  8)
  (BIN FILE]))
```

(\STRINGIN

[LAMBDA (STREAM SETLEN)

; Edited 19-Dec-2023 10:13 by rmk
; Edited 20-Apr-88 19:54 by jds

(* Read a string in length-contents form%: One word for the length, and one byte per character contained.
However, the length may be specified by the caller instead of being read from the file.)

```
(PROG ((LEN (OR SETLEN (\WIN STREAM)))
  STR)
  (SETQ STR (ALLOCSTRING LEN))
  (OR (ZEROP LEN)
    (for I from 1 to LEN do (RPLCHARCODE STR I (READCCODE STREAM))
  (RETURN STR]))
```

(\TEDIT.GET.TRAILER

[LAMBDA (STREAM LEN)

; Edited 26-Mar-2024 21:36 by rmk
; Edited 18-Jan-2024 10:22 by rmk
; Edited 16-Jan-2024 22:39 by rmk
; Edited 15-Jan-2024 17:38 by rmk
; Edited 13-Jan-2024 21:49 by rmk

;; For an open formatted stream, returns a list (VERSION PCCOUNT DESCPTR IDATE) where DESCPTR is the byte position of the first piece.
;; Returns NIL if it is not a formatted stream. Either way, the file is left at position 0 FWIW

;; If STREAM is the format-stream split of a complete Tedit file, then PIECESTART is the position in that larger file that this section was taken from,
;; and 0 in STREAM corresponds to PIECESTART in that file. TRAILERSIZE

```
(SETQ LEN (OR LEN (GETEOFPTR STREAM)))
(CL:WHEN (IGREATERP LEN 8)
  (LET (PIECESTART TRAILERSIZE PCCOUNT VERSION IDATE)
    (SETFILEPTR STREAM (IDIFFERENCE LEN 8))
    (SETQ PIECESTART (\DWIN STREAM))
    (SETQ PCCOUNT (\WIN STREAM))
    (SETQ VERSION (IDIFFERENCE (\SMALLPIN STREAM)
      31415))
    (PROG1 (SELECTQ VERSION
      (3
        [SETQ IDATE (OR (\TEDIT.GET.IDATE3 STREAM LEN)
          (GETFILEINFO STREAM 'ICREATIONDATE)]
        (SETQ TRAILERSIZE (IPLUS 8 (CL:IF IDATE
          (IPLUS (CONSTANT (NCHARS "DATE:"))
          4)
          0)))
        (LIST PIECESTART TRAILERSIZE VERSION PCCOUNT IDATE))
      ((2 1 0)
        (LIST PIECESTART 8 VERSION PCCOUNT))
      NIL)
    (SETFILEPTR STREAM 0))))))
```

; Move to start of FILEPTR to descriptions
; Read the file pos of the descriptions

; Current version

(\TEDIT.CACHEFILE

[LAMBDA (TEXT TEXTOBJ START END)

; Edited 22-Sep-2023 20:15 by rmk
; Edited 31-Aug-2023 15:35 by rmk
; Edited 14-Jul-2022 08:44 by rmk

;; If TEXT is not a random-access file, we copy it into local storage (NODIRCORE)

(LET (CACHE)

;; Sets the external format and its EOL.

```
[SETQ CACHE (OPENSTREAM '{NODIRCORE} 'BOTH 'NEW `((TYPE TEXT)
  (:EXTERNAL-FORMAT , (GETSTREAMPROP TEXT
    :EXTERNAL-FORMAT])
```

```

(COND
  ((OR START END)
    (COPYBYTES TEXT CACHE (OR START 0)
      (OR END -1)))
  (T (COPYBYTES TEXT CACHE))) ; Copy the text there
;; COPYBYTES can only have start/end args of NIL if the file is not random access. So it's impossible to grab out of the middle of a file on
;; an NS server. Sorry.
(CLOSEF TEXT)
(CL:WHEN TEXTOBJ
  ;; REMEMBER THAT THIS TEXT WAS CACHED, SO THAT LATER PUTS DON'T INVALIDATE THE CACHE.
  (PUTTEXTPROP TEXTOBJ 'CACHE T))
CACHE])
)

```

;; Until CL:COMPILE-FILE and any others are updated, They should use the public TEDIT.FORMATTEDFILEP

```
(MOVD? ' \TEDIT.GET.TRAILER ' \TEDIT.FORMATTEDP1)
```

```
(DEFINEQ
```

(\TEDIT.GET.PIECES3

```
[LAMBDA (TEXT TEXTOBJ PCCOUNT CURFILEBYTE# END)
```

```

; Edited 7-Apr-2024 17:20 by rmk
; Edited 20-Mar-2024 10:59 by rmk
; Edited 15-Mar-2024 14:37 by rmk
; Edited 14-Jan-2024 00:22 by rmk
; Edited 11-Jan-2024 12:37 by rmk
; Edited 19-Dec-2023 10:13 by rmk
; Edited 8-Dec-2023 22:49 by rmk
; Edited 7-Nov-2023 13:10 by rmk
; Edited 24-Sep-2023 22:00 by rmk
; Edited 2-Sep-2023 11:12 by rmk
; Edited 29-Aug-2023 00:18 by rmk

```

;; This runs through the Looks table portion of the TEXT file, gathering the looks and installing pointers to positions in the character section of the
 ;; file. It doesn't actually examine the characters in the file. It returns a piece chain that covers the text but that hasn't been installed in the btree.
 ;; The pieces need further adjustment for character encoding and to prevent multibyte characters from crossing buffer boundaries before they are
 ;; installed in the btree.

```

(TEXTOBJ! TEXTOBJ)
(SETFILEPTR TEXT (IDIFFERENCE (OR END (GETEOFPTR TEXT))
  8))
(SETFILEPTR TEXT (\DWIN TEXT)) ; Pieceinfo byte #
(for PCNO PC BYTELEN PREVPC FIRSTPC PARALOOKSMAP CHARLOOKSMAP (ORIGBYTE# _ CURFILEBYTE#)
  (DEFAULTCHARLOOKS _ (FGETTOBJ TEXTOBJ DEFAULTCHARLOOKS))
  (OLDPARALOOKS _ (FGETTOBJ TEXTOBJ FMTSPEC)) from 1 to PCCOUNT first (SETQ FIRSTPC (CREATE PIECE))
  ; Throw away at the end
  ; (SETQ PREVPC FIRSTPC)
do (SETQ PC NIL) ; This loop may not really read a piece, so we have to distinguish
  ; that case.
  (SETQ BYTELEN (\DWIN TEXT))
  [SELECTC (\WIN TEXT)
    (\PieceDescriptorLOOKS
      ; New character looks. Build a piece to describe those
      ; characters.
      (SETQ PC
        (create PIECE
          PCONTENTS _ TEXT
          PFPOS _ CURFILEBYTE#
          PLEN _ BYTELEN
          PBYTELEN _ BYTELEN
          PPARALOOKS _ OLDPARALOOKS
          PTYPE _ THINFILE.PTYPE
          PCHARSET _ 0
          PBYTESPERCHAR _ 1
          PREVPIECE _ PREVPC))
        (\TEDIT.GET.CHARLOOKS.INDEX PC TEXT) ; Get its looks and character-pointers
        (add CURFILEBYTE# BYTELEN))
      (\PieceDescriptorPARA
        ; Reading a new set of paragraph looks.
        (CL:WHEN PREVPC (FSETPC PREVPC PPARALAST T)) ; Mark the end of the preceding paragraph.
        (SETQ OLDPARALOOKS (\TEDIT.GET.PARALOOKS.INDEX TEXT))
        ; Get the new set of looks, for use by later pieces.
        ; Mark the document as containing paragraph formatting
        (SETTOBJ TEXTOBJ FORMATTEDP T))
      (\PieceDescriptorOBJECT ;; BYTELEN is the number of bytes on the file, PLEN is always 1 character
        (SETQ PC
          (create PIECE
            PCONTENTS _ TEXT
            PFPOS _ CURFILEBYTE#
            PBYTELEN _ BYTELEN
            PLEN _ 1
            PPARALOOKS _ OLDPARALOOKS
            PTYPE _ OBJECT.PTYPE
            PREVPIECE _ PREVPC))
          (\TEDIT.GET.OBJECT (GETTOBJ TEXTOBJ STREAMHINT)
            PC TEXT CURFILEBYTE#)

```

```

      (add CURFILEBYTE# BYTELEN)
      (FSETPC PC PLOOKS (if (ZEROP (BIN TEXT))
        then
          ;; No new looks; steal them from the prior piece. RMK: Goofy part of this format--we now
          ;; always put out 0.
          (OR (AND PREVPC (PLOOKS PREVPC))
            DEFAULTCHARLOOKS)
        else
          ;; There are new character looks for this object. Read them in.
          (\TEDIT.GET.SINGLE.CHARLOOKS TEXT TEXTOBJ)))
      (\PieceDescriptorPAGEFRAME
        (FSETTOBJ TEXTOBJ TXTPAGEFRAMES (\TEDIT.PARSE.PAGEFRAMES (READ TEXT)))
        (\PieceDescriptorCHARLOOKSLIST
          (add PCNO -1)
          (FSETTOBJ TEXTOBJ TXTCHARLOOKSLIST (\TEDIT.GET.CHARLOOKS.LIST TEXT TEXTOBJ))
          [SETQ CHARLOOKSMAP (ARRAY (LENGTH (FGETTOBJ TEXTOBJ TXTCHARLOOKSLIST)
            ;; Build an array of the looks, so the reader can index them.
            (for J from 1 as CHARLOOKS in (FGETTOBJ TEXTOBJ TXTCHARLOOKSLIST)
              do (SETA CHARLOOKSMAP J CHARLOOKS)))
          (\PieceDescriptorPARALOOKSLIST
            (add PCNO -1)
            (FSETTOBJ TEXTOBJ TXTPARALOOKSLIST (\TEDIT.GET.PARALOOKS.LIST TEXT TEXTOBJ))
            [SETQ PARALOOKSMAP (ARRAY (LENGTH (FGETTOBJ TEXTOBJ TXTPARALOOKSLIST)
              ;; Build an array of the looks, so the reader can index them.
              (for J from 1 as PARALOOKS in (FGETTOBJ TEXTOBJ TXTPARALOOKSLIST)
                do (SETA PARALOOKSMAP J PARALOOKS)))
            (PROGN (TEDIT.PROMPTPRINT TEXTOBJ "WARNING: Unknown-type piece skipped." T)
              (SETFILEPTR TEXT (IPLUS (GETFILEPTR TEXT)
                (\WIN TEXT)
                ; Chain them together without putting them in the tree
              (CL:WHEN PC
                (FSETPC PREVPC NEXTPIECE PC)
                (SETQ PREVPC PC))
              finally (SETQ PC (NEXTPIECE FIRSTPC))
                ; Throw out the dummy FIRSTPC
                (FSETPC PC PREVPPIECE NIL)
                ;; We defer filling in the actual looks to avoid requiring the mapping arrays to come before the content pieces. This makes it easier to
                ;; prepend additional pieces without parsing the whole sequence, as Lafite wants to do.
                [for P inpieces PC do (CL:WHEN (SMALLP (PLOOKS P))
                  (change (PLOOKS P)
                    (ELT CHARLOOKSMAP DATUM)))
                  (CL:WHEN (SMALLP (PPARALOOKS P))
                    (change (PPARALOOKS P)
                      (CL:UNLESS (EQ DATUM 0)
                        ; For the last piece?
                        (ELT PARALOOKSMAP DATUM))))]
                (CL:WHEN (EQ :XCCS (STREAMPROP TEXT 'FORMAT))
                  (\TEDIT.INTERPRET.XCCS.SHIFTS PC TEXT))
                (RETURN PC))

```

(\TEDIT.GET.IDATE3

[LAMBDA (STREAM END)

; Edited 6-Dec-2023 16:55 by rmk

;; Returns the integer IDATE for slightly updated version 3 files, otherwise NIL. 4 for the bytes of the IDATE, 8 for the header. Leaves resets to
 ;; starting position (assumes an error wouldn't matter).

```

      (CL:WHEN (IGREATERP END (IPLUS (CONSTANT (NCHARS "DATE:")
        4 8))
        (LET ((FILEPTR (GETFILEPTR STREAM)))
          (SETFILEPTR STREAM (IDIFFERENCE END (IPLUS (CONSTANT (NCHARS "DATE:")
            4 8))

```

;; DATE: is the marker for this extension to version 3 (could be removed if version is update).

```

      (PROG1 (CL:WHEN (AND (EQ (CHARCODE D)
        (BIN STREAM))
        (EQ (CHARCODE A)
        (BIN STREAM))
        (EQ (CHARCODE T)
        (BIN STREAM))
        (EQ (CHARCODE E)
        (BIN STREAM))
        (EQ (CHARCODE %)
        (BIN STREAM)))
        (\DWIN STREAM))
      (SETFILEPTR STREAM FILEPTR))))

```

(\TEDIT.MAKE.STRINGPIECE

[LAMBDA (PC STRING)

; Edited 23-Jan-2024 14:32 by rmk

; Edited 16-Jan-2024 11:15 by rmk

; Edited 12-Jan-2024 16:34 by rmk

;; Makes a string piece modeled on PC containing STRING, and links it in the piece-chain after PC. STRING can be a single charcode.

```

      (SETQ STRING (CL:IF (CHARCODEP STRING)
        (ALLOCSTRING 1 STRING)
        (CONCAT STRING)))
      (LET (SPIECE)
        (SETQ SPIECE (if (fetch (STRINGP FATSTRINGP) of STRING)

```

```

        then (create PIECE using PC PTYPC _ FATSTRING.PTYPE PCONTENTS _ STRING PLEN _
              (NCHARS STRING)
              PBYTESPERCHAR _ 2 PBINABLE _ NIL PBYTELEN _ (UNFOLD
              (NCHARS STRING)
              2)
              PREVPIECE _ PC PUTF8BYTESPERCHAR _ 2 PFPOS _ 0)
        else (create PIECE using PC PTYPC _ THINSTRING.PTYPE PCONTENTS _ STRING PLEN _
              (NCHARS STRING)
              PBYTESPERCHAR _ 1 PBINABLE _ T PBYTELEN _ (NCHARS STRING)
              PREVPIECE _ PC PUTF8BYTESPERCHAR _ 1 PFPOS _ 0)))

(CL:WHEN (NEXTPIECE PC)
  (FSETPC (NEXTPIECE PC)
    PREVPIECE SPIECE))
(FSETPC PC NEXTPIECE SPIECE)
SPIECE])

)

(DEFINEQ

(\TEDIT.GET.UNFORMATTED.FILE.XCCS
  [LAMBDA (STRM START END DEFAULTCHARLOOKS DEFAULTPARALOOKS)
    ; Edited 21-Jan-2024 09:40 by rmk
    ; Edited 12-Jan-2024 13:13 by rmk
    ; Edited 10-Jan-2024 11:19 by rmk
    ; Edited 8-Jan-2024 13:15 by rmk

    ;; We build a chain of pieces for the NS stringlets, some of which are divided at CR/LF.
    ;; We assume that caller has positioned the stream at the intended start byte and has set the ENDOFSTREAMOP to return NIL on EOF.
    ;; CRBEFORE and the LF test are used to ensure that potential EOL's are normalized to EOL and appear at the end of their pieces, whether or not
    ;; they we decide to make them PPARALAST on input. LF's after CR are discarded, LF's by themselves are converted to singleton EOLstring
    ;; pieces.

    (bind (NEXTFILEPOS _ START)
      (CHARSET _ 0)
      (FIRSTPC _ (create PIECE
        PLOOKS _ DEFAULTCHARLOOKS
        PPARALOOKS _ DEFAULTPARALOOKS))

      (CODESIZE _ 1)
      (SBINABLE _ (fetch (STREAM BINABLE) of STRM))
      EOLC PC BYTE CHAR PREVPC PTYPC RUNLEN FILEPOS CRBEFORE SHIFTNEXT first (SETQ PREVPC FIRSTPC)
      ; FIRSTPC is a throwaway
      ; Start of next file piece

    do (SETQ FILEPOS NEXTFILEPOS)

      ;; In thin or fat mode, we have to look at the first byte of the next character, to see if it is a shift. If not a shift, we have to decode the byte
      ;; configuration to make sure we can detect CR or LF.

      (do (CL:WHEN (IGEQ NEXTFILEPOS END)
        (RETURN))
        (SETQ BYTE (\PEEKBIN STRM T))
        (CL:WHEN (SETQ SHIFTNEXT (EQ NSCHARSETSHIFT BYTE))
          (SETQ CHAR NIL)
          (RETURN))
          ; Suppress CR/LF checking on real shift
        (BIN STRM)
          ; Not a shift, read the peeked byte
        (SETQ CHAR (if (EQ CODESIZE 2)
          then
          ; Return T if this takes us over the end
          (LOGOR (LLSH BYTE 8)
            (CL:IF (AND (ILEQ NEXTFILEPOS END)
              (SETQ BYTE (BIN STRM)))
              BYTE
              (RETURN)))
            else (LOGOR (LLSH CHARSET 8)
              BYTE)))
          (add NEXTFILEPOS CODESIZE)
          (CL:WHEN (MEMB CHAR (CHARCODE (CR LF)))
            (RETURN)))

      ;; NEXTFILEPOS and file are positioned at beginning of the next piece, possibly after CR and LF have been read.

      (SETQ RUNLEN (IDIFFERENCE NEXTFILEPOS FILEPOS))
      (CL:WHEN (EQ CHAR (CHARCODE LF))
        ; We never produce raw LF's
        (add RUNLEN (IMINUS CODESIZE)))
      (CL:WHEN (IGREATERP RUNLEN 0)
        (SETQ PTYPC (if (EQ CODESIZE 2)
          then FATFILE2.PTYPE
          elseif (EQ CHARSET 0)
          then THINFILE.PTYPE
          else FATFILE1.PTYPE))

      (SETQ PC
        (create PIECE
          PTYPC _ PTYPC
          PCONTENTS _ STRM
          PFPOS _ FILEPOS
          PLEN _ (IQUOTIENT RUNLEN CODESIZE)
          PLOOKS _ DEFAULTCHARLOOKS
          PPARALOOKS _ DEFAULTPARALOOKS
          PCHARSET _ CHARSET
          PBYTESPERCHAR _ CODESIZE
          PBYTELEN _ RUNLEN
          PREVPIECE _ PREVPC

```

```

PBINABLE _ (AND (EQ PTYPE THINFILE.PTYPE)
               SBINABLE)))
(SETQ PREVPC (FSETPC PREVPC NEXTPIECE PC)))
(CL:WHEN (EQ CHAR (CHARCODE LF))
  [if CRBEFORE
    then (SETQ EOLC CRLF.EOLC)
    else ;; Linefeed not preceded by CR, replace by string piece
      (SETQ EOLC LF.EOLC)
      (SETQ PREVPC (\TEDIT.MAKE.STRINGPIECE PREVPC (CHARCODE EOL))
        ; Interpret and bump NEXTFILEPOS for the shifting bytes.
        ; Read the original peeked byte
      (CL:WHEN SHIFTNEXT
        (BIN STRM)
        (SETQ CHARSET (BIN STRM))
        (if (EQ CHARSET \NORUNCODE)
          then (CL:UNLESS (MEMB (BIN STRM)
                               ' (0 NIL))
            (ERROR "EXPECTED PLANE 0 XCCS CHARACTER IS ILL-FORMED"))
          (SETQ CHARSET 0)
          (SETQ CODESIZE 2)
          else (SETQ CODESIZE 1))
        (add NEXTFILEPOS (ADD1 CODESIZE))
        (SETQ SHIFTNEXT NIL))
      (CL:WHEN (IGEQ NEXTFILEPOS END)
        (CL:WHEN EOLC
          (replace (STREAM EOLCONVENTION) of STRM with EOLC))
          ; Record the last one we encountered
        (RETURN (NEXTPIECE FIRSTPC)))
      (CL:WHEN (SETQ CRBEFORE (EQ CHAR (CHARCODE CR)))
        (SETQ EOLC CR.EOLC))

```

(\TEDIT.INTERPRET.XCCS.SHIFTS

[LAMBDA (PIECES PFILE)

```

; Edited 21-Jan-2024 00:02 by rmk
; Edited 19-Jan-2024 10:34 by rmk
; Edited 12-Jan-2024 23:53 by rmk
; Edited 6-Jan-2024 15:02 by rmk
; Edited 19-Dec-2023 13:13 by rmk

```

;; PIECES is a chain of pieces read from a formatted XCCS file but not yet inserted into the BTREE. Each file piece has PFILE, PFPOS, and
 ;; PBYTELEN. This function interprets any XCCS shift characters that prefix the actual characters, coercing the piece properties and bumping the
 ;; PFPOS/PLEN to hide the shifts.

```

(for PC BYTE EOLC inpieces PIECES when (EQ PFILE (PCONTENTS PC))
  do (\SETFILEPTR PFILE (PFPOS PC))
    (SETQ BYTE (BIN PFILE))
    [if (EQ NSCHARSETSHIFT BYTE)
      then (SELECTC (SETQ BYTE (BIN PFILE))
        (0
          (add (PBYTELEN PC)
            -2)
          (FSETPC PC PLEN (PBYTELEN PC))
          (FSETPC PC PTYPE THINFILE.PTYPE)
          (FSETPC PC PBINABLE T)
          (FSETPC PC PCHARSET 0)
          (add (PFPOS PC)
            2))
          ; Runlength of charset 0
          ; The shift characters really disappear
        (\NORUNCODE
          (CL:UNLESS (EQ 0 (BIN PFILE))
            (SHOULDNT "XCCS CHARACTER NOT IN PLANE 0"))
          (FSETPC PC PTYPE FATFILE2.PTYPE)
          (FSETPC PC PBYTESPERCHAR 2)
          (add (PFPOS PC)
            3)
          (add (PBYTELEN PC)
            -3)
          (FSETPC PC PLEN (FOLDLO (PBYTELEN PC)
            2)))
          ; Going for 3 byte characters
        (PROGN ;; A run in a non-zero charset. Convert it to FATFILE1. Could also read into a FATSTRING instead, get rid of
          ;; on-file FATFILE1. A string piece could hold adjacent substrings in different charsets
          (add (PBYTELEN PC)
            -2)
          (add (PFPOS PC)
            2)
          (FSETPC PC PLEN (PBYTELEN PC))
          (FSETPC PC PBINABLE NIL)
          (FSETPC PC PTYPE FATFILE1.PTYPE)
          (FSETPC PC PBYTESPERCHAR 1)
          (FSETPC PC PCHARSET BYTE)))
        elseif (EQ 2 (PBYTESPERCHAR PC))
          then (FSETPC PC PTYPE FATFILE2.PTYPE)
          ; This is the continuation of an XCCS 2-byte run that was broken
          ; up presumably for looks or paragraphs
          (FSETPC PC PCHARSET \NORUNCODE)
          (FSETPC PC PLEN (FOLDLO (PBYTELEN PC)
            2))
        else (FSETPC PC PCHARSET 0)
          ; A charset 0 1-byte run
          (FSETPC PC PBINABLE T)
          (FSETPC PC PBYTESPERCHAR 1)
          [\SETFILEPTR PFILE (IPLUS (PFPOS PC)

```

```

                (SUB1 (PLEN PC]
    (if (EQ (CHARCODE LF)
        (SETQ BYTE (BIN PFILE)))
        then ;; First EOL approximation: Convert trailing LF's to string-piece EOL's. This doesn't get LF's at the end of FATFILE2 or
              ;; anywhere other than the end.
        [if (EQ (PLEN PC)
            1)
            then (FSETPC PC PTYPE THINSTRING.PTYPE)
                  ; Convert to EOL string
                  (FSETPC PC PCONTENTS (ALLOCSTRING 1 (CHARCODE EOL)))
            else (add (PLEN PC)
                    -1)
                  ; Shorten PC, add EOL string piece unless preceded by CR
            (add (PBYTELEN PC)
                -1)
            (if (EQ (CHARCODE CR)
                (\BACKBIN PFILE))
                then (SETQ EOLC CR LF.EOLC)
                else (SETQ EOLC LF.EOLC)
                (SETQ PC (PROG1 (\TEDIT.MAKE.STRINGPIECE PC (CHARCODE EOL))
                    (FSETPC PC PPARALAST NIL]
            else (CL:WHEN (EQ BYTE (CHARCODE CR))
                (SETQ EOLC CR.EOLC))
                (FSETPC PC PTYPE THINFILE.PTYPE)
                (FSETPC PC PLEN (PBYTELEN PC]
    finally (CL:WHEN EOLC
        (replace (STREAM EOLCONVENTION) of PFILE with EOLC)))
    PIECES])
)

;; XCCS

(DEFINEQ

(\TEDIT.GET.UNFORMATTED.FILE.UTF8
  (LAMBDA (STRM START END DEFAULTCHARLOOKS DEFAULTPARALOOKS)
    ; Edited 11-Mar-2024 23:55 by rmk
    ; Edited 4-Feb-2024 10:12 by rmk
    ; Edited 2-Feb-2024 11:24 by rmk
    ; Edited 21-Jan-2024 09:41 by rmk
    ; Edited 12-Jan-2024 13:17 by rmk
    ; Edited 10-Jan-2024 10:32 by rmk
    ; Edited 8-Jan-2024 12:08 by rmk

    ;; Break a UTF-8 file into pieces all of whose characters are of the same length. This is roughly the same logic of
    ;; \TEDIT.GET.UNFORMATTED.FILE.XCCS.
    ;; We assume that caller has positioned the stream at the intended start byte and has set the ENDOFSTREAMOP to return NIL on EOF.
    ;; CRBEFORE and the LF test are used to ensure that potential CR/LF's are normalized to EOL and appear at the end of their pieces, whether or
    ;; not we decide to make them PPARALAST on input. LF's after CR are discarded, LF's by themselves are converted to singleton EOLstring
    ;; pieces.
    (bind (NEXTFILEPOS _ START)
        (FIRSTPC _ (create PIECE
            PLOOKS _ DEFAULTCHARLOOKS
            PPARALOOKS _ DEFAULTPARALOOKS))
        (NEXTCODESIZE _ 1)
        (SBINABLE _ (fetch (STREAM BINABLE) of STRM))
        EOLC CHAR PREVPC PTYPE RUNLEN FILEPOS CRBEFORE CODESIZE PREVCRLF
    first (SELECTQ (READBOM STRM)
        (:UTF-8 (add NEXTFILEPOS 3))
        ((:UTF-16BE :UTF-16LE)
            (ERROR "BOM :UTF-16 not yet implemented")
            (add NEXTFILEPOS 2))
        NIL)
        (SETQ CODESIZE NEXTCODESIZE)
        (SETQ PREVPC FIRSTPC)
    do (SETQ FILEPOS NEXTFILEPOS)
        (do ;; We stop extending if the next character would be out of range, go below to wrap up the final piece.
            (CL:WHEN (IGEQ NEXTFILEPOS END)
                (RETURN))
            (SETQ CHAR (\PEEKBIN STRM))
            (SETQ NEXTCODESIZE (UTF8-SIZE-FROM-BYTE1 CHAR))
            (CL:UNLESS (EQ CODESIZE NEXTCODESIZE)
                ;; Don't want LF processing if we split because of size change. If next is a CR/LF still in size 1, we pick it up below
                (SETQ CHAR NIL)
                (RETURN))
            (SETQ NEXTCODESIZE (UTF8.VALIDATE STRM))
            (add NEXTFILEPOS NEXTCODESIZE)
            (CL:WHEN (MEMB CHAR (CHARCODE (CR LF)))
                ;; Force a split now, after reading the CR/LF. But make sure a size change doesn't force an empty split in front of the next
                ;; character.
                (SETQ NEXTCODESIZE (NUTF8-BYTE1-BYTES (OR (\PEEKBIN STRM)
                    0))))

```

```

        (RETURN))
;;
;; NEXTFILEPOS and file are positioned at beginning of next piece, possibly after CR and LF have been read.
(SETQ RUNLEN (IDIFFERENCE NEXTFILEPOS FILEPOS))
(CL:WHEN (EQ CHAR (CHARCODE LF)) ; We never produce raw LF's
  (add RUNLEN -1))
(CL:WHEN (IGREATERP RUNLEN 0)
  (SETQ PTYPE (CL:IF (EQ CODESIZE 1)
    THINFILE.PTYPE
    UTF8.PTYPE))
  (SETQ PREVPC
    (FSETPC PREVPC NEXTPIECE
      (create PIECE
        PTYPE _ PTYPE
        PCONTENTS _ STRM
        PFPOS _ FILEPOS
        PLEN _ (IQUOTIENT RUNLEN CODESIZE)
        PLOOKS _ DEFAULTCHARLOOKS
        PPARALOOKS _ DEFAULTPARALOOKS
        PBYTESPERCHAR _ CODESIZE
        PBYTELEN _ RUNLEN
        PREVPIECE _ PREVPC
        PBINABLE _ (AND (EQ PTYPE THINFILE.PTYPE)
          SBINABLE)
        PUTF8BYTESPERCHAR _ CODESIZE))))
(CL:WHEN (EQ CHAR (CHARCODE LF))
  [if CRBEFORE
    then (SETQ EOLC CRLF.EOLC)
    else ;; Linefeed not preceded by CR, replace by string piece
      (SETQ EOLC LF.EOLC)
      (SETQ PREVPC (\TEDIT.MAKE.STRINGPIECE PREVPC (CHARCODE EOL))])
  (CL:WHEN (IGEQU NEXTFILEPOS END) ; Record the last EOLC we encountered
    (CL:WHEN EOLC
      (replace (STREAM EOLCONVENTION) of STRM with EOLC))
    (RETURN (NEXTPIECE FIRSTPC)))
  (SETQ CODESIZE NEXTCODESIZE)
  (CL:WHEN (SETQ CRBEFORE (EQ CHAR (CHARCODE CR)))
    (SETQ EOLC CR.EOLC))
)

;; UTF-8
(DEFINEQ
(\TEDIT.GET.CHARLOOKS.LIST
  [LAMBDA (FILE TEXTOBJ)
    ; Edited 7-Apr-2024 17:22 by rmk
    ; Edited 16-Jan-2024 22:44 by rmk
    ; Edited 19-Dec-2023 10:13 by rmk
    ; (* jds "28-Jan-85 17:50")
    ; Read the list of CHARLOOKSs from the file.
    (for I from 1 to (\WIN FILE) collect (\TEDIT.GET.SINGLE.CHARLOOKS FILE TEXTOBJ)])

(\TEDIT.GET.SINGLE.CHARLOOKS
  [LAMBDA (FILE TEXTOBJ)
    ; Edited 7-Apr-2024 17:21 by rmk
    ; Edited 16-Jan-2024 22:44 by rmk
    ; Edited 21-Dec-2023 23:54 by rmk
    ; Edited 19-Dec-2023 10:13 by rmk
    ; Edited 25-Nov-2023 23:21 by rmk
    ; Edited 24-Aug-2023 15:05 by rmk
    ; Edited 20-Feb-2022 12:42 by larry
    ; Edited 30-May-91 20:25 by jds
    ;; Read one CHARLOOKS from FILE. This gets and then sets the file pointer, based on the stored length. But that won't work if the file is not
    ;; random access. Maybe that's not necessary?
    ;; TEXTOBJ only for printing in the local promptwindow, if necessary.
    (PROG* ((LOOKS (create CHARLOOKS))
      (FILEPOS (GETFILEPTR FILE))
      (LOOKSLEN (\WIN FILE))
      FONT NAME SIZE SUPER PROPS STYLESTR)
      (SETQ NAME (\ARBIN FILE)) ; The font name
      (SETQ SIZE (\WIN FILE)) ; Size of the type, in points
      (SETQ SUPER (\SMALLPIN FILE)) ; Superscripting distance, could be negative
      (replace (CHARLOOKS CLSTYLE) of LOOKS with (OR (\ARBIN FILE)
        0))
      (replace (CHARLOOKS CLUSERINFO) of LOOKS with (\ARBIN FILE))
      (SETQ PROPS (\WIN FILE))
      (with CHARLOOKS LOOKS [SETQ CLUNBREAKABLE (NOT (ZEROP (LOGAND 4096 PROPS)
        [SETQ CLLEADER (NOT (ZEROP (LOGAND 2048 PROPS)
        [SETQ CLINVERTED (NOT (ZEROP (LOGAND 1024 PROPS)
        [SETQ CLBOLD (NOT (ZEROP (LOGAND 512 PROPS)
        [SETQ CLITAL (NOT (ZEROP (LOGAND 256 PROPS)
        [SETQ CLULINE (NOT (ZEROP (LOGAND 128 PROPS)

```

```

[SETQ CLOLINE (NOT (ZEROP (LOGAND 64 PROPS)
[SETQ CLSTRIKE (NOT (ZEROP (LOGAND 32 PROPS)
[SETQ CLSMALLCAP (NOT (ZEROP (LOGAND 16 PROPS)
[SETQ CLPROTECTED (NOT (ZEROP (LOGAND 8 PROPS)
[SETQ CLINVISIBLE (NOT (ZEROP (LOGAND 4 PROPS)
[SETQ CLSELHERE (NOT (ZEROP (LOGAND 2 PROPS)
[SETQ CLCANCOPY (NOT (ZEROP (LOGAND 1 PROPS)
[SETQ CLSIZE SIZE)
[SETQ CLOFFSET SUPER))
[SETQ FONT (if (LISTP NAME)
  then
    (FONTCLASS (pop NAME)
      NAME)
  elseif (AND NAME (NOT (ZEROP SIZE)))
  then (FONTCREATE NAME SIZE (COND
    ((AND (fetch (CHARLOOKS CLBOLD) of LOOKS)
      (fetch (CHARLOOKS CLITAL) of LOOKS))
    'BOLDITALIC)
    ((fetch (CHARLOOKS CLBOLD) of LOOKS)
      'BOLD)
    ((fetch (CHARLOOKS CLITAL) of LOOKS)
      'ITALIC]
(replace (CHARLOOKS CLNAME) of LOOKS with (if (type? FONTCLASS FONT)
  then ;; Put the display family in the CLNAME spot. Better than NIL.
    (CL:WHEN [SETQ NAME
      (FONTCOPY FONT ' (DEVICE DISPLAY NOERROR T)
      (FONTPROP NAME 'FAMILY))
    else NAME))
(replace (CHARLOOKS CLFONT) of LOOKS with FONT)
[SETFILEPTR FILE (IPLUS FILEPOS LOOKSLEN))
[RETURN LOOKS]]

```

(\TEDIT.GET.CHARLOOKS

[LAMBDA (PC FILE LOOKSARRAY)

; Edited 13-Jan-2024 00:01 by rmk
 ; Edited 19-Dec-2023 10:13 by rmk
 ; Edited 3-Sep-2023 23:31 by rmk
 ; Edited 28-Aug-2023 22:19 by rmk
 ; Edited 26-Aug-2023 23:22 by rmk
 ; Edited 30-May-91 21:43 by jds

;; Set the PLOOKS for the current piece, PC, according to what the file says

;; We also

```

(LET ((FLAGS (BIN FILE)))
  (FSETPC PC PLOOKS (ELT LOOKSARRAY (\WIN FILE)))
  (CL:UNLESS (ZEROP (LOGAND FLAGS 1))
    (FSETPC PC PNEW T))
  (CL:UNLESS (ZEROP (LOGAND FLAGS 2))
    (FSETPC PC PLEN (IQUOTIENT (FGETPC PC PLEN)
      2))
    (FSETPC PC PTYPE FATFILE2.PTYPE)
    (FSETPC PC PBYTESPERCHAR 2)))]

```

; XCSS FAT. It may be a continuation of a previous fat piece

(\TEDIT.GET.PARALOOKS.INDEX

[LAMBDA (STREAM PARAHASH)

; Edited 13-Jan-2024 13:06 by rmk
 ; Edited 19-Dec-2023 10:13 by rmk
 ; Edited 18-Dec-88 17:47 by jds

;; Reads the index of a paragraph format. .

;; Index 0 indicates an end-of-file dummy, used to preserve the paraloooks of EOF para break.

(\WIN STREAM)]

(\TEDIT.GET.CHARLOOKS.INDEX

[LAMBDA (PC FORMATSTREAM)

; Edited 14-Jan-2024 00:11 by rmk
 ; Edited 19-Dec-2023 10:13 by rmk
 ; Edited 3-Sep-2023 23:31 by rmk
 ; Edited 28-Aug-2023 22:19 by rmk
 ; Edited 26-Aug-2023 23:22 by rmk
 ; Edited 30-May-91 21:43 by jds

;; Set the type, length, and and charlooks-index for the current piece, PC

```

(LET ((FLAGS (BIN FORMATSTREAM)))
  (FSETPC PC PLOOKS (\WIN FORMATSTREAM))
  (CL:UNLESS (ZEROP (LOGAND FLAGS 1))
    (FSETPC PC PNEW T))
  (CL:UNLESS (ZEROP (LOGAND FLAGS 2))
    (FSETPC PC PLEN (IQUOTIENT (FGETPC PC PLEN)
      2))
    (FSETPC PC PTYPE FATFILE2.PTYPE)
    (FSETPC PC PBYTESPERCHAR 2)))]

```

; XCSS FAT. It may be a continuation of a previous fat piece

)

(DEFINEQ

(\TEDIT.GET.PARALOOKS.LIST

[LAMBDA (FILE TEXTOBJ)

; Edited 16-Jan-2024 22:47 by rmk
 ; Edited 19-Dec-2023 10:13 by rmk
 (* jds "13-Jun-85 11:14")
 ; Read the list of CHARLOOKSs from the file.

(for I from 1 to (\WIN FILE) collect (\TEDIT.GET.SINGLE.PARALOOKS FILE TEXTOBJ])

(\TEDIT.GET.SINGLE.PARALOOKS

[LAMBDA (FILE TEXTOBJ)

; Edited 16-Jan-2024 22:52 by rmk
 ; Edited 19-Dec-2023 10:13 by rmk
 ; Edited 3-Mar-2023 23:16 by rmk
 ; Edited 11-Oct-2022 15:23 by rmk
 ; Edited 1-Aug-2022 12:04 by rmk
 ; Edited 2-Jul-93 21:31 by sybalsky:MV:ENVOS
 ; Read a paragraph format spec from the FILE, and return it for
 ; later use.

(PROG ((LOOKS (create FMTSPEC))

(FILEPOS (GETFILEPTR FILE))

(LOOKSLEN (\WIN FILE))

TABFLG DEFTAB TABCOUNT TABS TABSPEC TABTYPE QUAD)

(replace (FMTSPEC 1STLEFTMAR) of LOOKS with (\SMALLPIN FILE))

; Left margin for the first line of the paragraph

(replace (FMTSPEC LEFTMAR) of LOOKS with (\SMALLPIN FILE))

; Left margin for the rest of the paragraph

(replace (FMTSPEC RIGHTMAR) of LOOKS with (\SMALLPIN FILE))

; Right margin for the paragraph

(replace (FMTSPEC LEADBEFORE) of LOOKS with (\SMALLPIN FILE))

; Leading before the paragraph

(replace (FMTSPEC LEADAFTER) of LOOKS with (\SMALLPIN FILE))

; Lead after the paragraph

(replace (FMTSPEC LINELEAD) of LOOKS with (\SMALLPIN FILE))

(SETQ TABSPEC (CONS DEFTAB NIL))

; inter-line leading

(replace (FMTSPEC TABSPEC) of LOOKS with TABSPEC)

; Will be tab specs

(SETQ TABFLG (BIN FILE))

(replace (FMTSPEC QUAD) of LOOKS with (SELECTC (SETQ QUAD (BIN FILE))

(1 'LEFT)

(2 'RIGHT)

(3 'CENTERED)

(4 'JUSTIFIED)

(SHOULDNT)))

(CL:UNLESS (ZEROP (LOGAND TABFLG 1))

; There are tabs to read

(SETQ DEFTAB (\SMALLPIN FILE))

(SETQ TABCOUNT (BIN FILE))

[SETQ TABS (for TAB# from 1 to TABCOUNT collect (create TAB

TABX _ (\SMALLPIN FILE)

TABKIND _ (SELECTQ (SETQ TABTYPE (BIN FILE))

(0 'LEFT)

(1 'RIGHT)

(2 'CENTERED)

(3 'DECIMAL)

(4 'DOTTEDLEFT)

(5 'DOTTEDRIGHT)

(6 'DOTTEDCENTERED)

(7 'DOTTEDDECIMAL)

(SHOULDNT])

(CL:UNLESS (ZEROP DEFTAB)

(RPLACA TABSPEC DEFTAB))

(RPLACD TABSPEC TABS))

(CL:UNLESS (ZEROP (LOGAND TABFLG 2))

; There are other paragraph parameters to be read.

(replace (FMTSPEC FMTSPECIALX) of LOOKS with (\SMALLPIN FILE))

; Special X location on page for this paragraph

(replace (FMTSPEC FMTSPECIALY) of LOOKS with (\SMALLPIN FILE))

(replace (FMTSPEC FMTUSERINFO) of LOOKS with (\ARBIN FILE))

(replace (FMTSPEC FMTPARATYPE) of LOOKS with (\ATMIN FILE))

(replace (FMTSPEC FMTPARASUBTYPE) of LOOKS with (\ATMIN FILE))

(replace (FMTSPEC FMTSTYLE) of LOOKS with (\ARBIN FILE))

(replace (FMTSPEC FMTCHARSTYLES) of LOOKS with (\ARBIN FILE))

(replace (FMTSPEC FMTNEWPAGEBEFORE) of LOOKS with (\ARBIN FILE))

(replace (FMTSPEC FMTNEWPAGEAFTER) of LOOKS with (\ARBIN FILE))

(replace (FMTSPEC FMTHEADINGKEEP) of LOOKS with (\ARBIN FILE))

(replace (FMTSPEC FMTKEEP) of LOOKS with (\ARBIN FILE))

(CL:WHEN (ILESSP (GETFILEPTR FILE)

(IPLUS FILEPOS LOOKSLEN))

(replace (FMTSPEC FMTBASETOBASE) of LOOKS with (\ARBIN FILE)))

(CL:WHEN (ILESSP (GETFILEPTR FILE)

(IPLUS FILEPOS LOOKSLEN))

(replace (FMTSPEC FMTREVISED) of LOOKS with (\ARBIN FILE)))

(CL:WHEN (ILESSP (GETFILEPTR FILE)

(IPLUS FILEPOS LOOKSLEN))

(replace (FMTSPEC FMTCOLUMN) of LOOKS with (\ARBIN FILE)))

(CL:WHEN (ILESSP (GETFILEPTR FILE)

(IPLUS FILEPOS LOOKSLEN))

(replace (FMTSPEC FMTCHARSTYLES) of LOOKS with (\ARBIN FILE))))

(CL:WHEN (ILESSP (GETFILEPTR FILE)

```

(IPLUS FILEPOS LOOKSLEN)) ; There is more PARALOOKS info in this piece -- we probably
; lost data.
(TEDIT.PROMPTPRINT TEXTOBJ "WARNING: Newer file version; you lost PARALOOKS info" T)
(SETFILEPTR FILE (IPLUS FILEPOS LOOKSLEN))
(RETURN LOOKS])

```

(\TEDIT.GET.PARALOOKS

```

[LAMBDA (FILE PARAHASH) ; Edited 19-Dec-2023 10:13 by rmk
; Edited 18-Dec-88 17:47 by jds

```

```

;; Read a paragraph format spec from the FILE, and return it for later use.
;; Paragraph format # of 0 indicates an end-of-file dummy, used to preserve the paralooks of EOF para break.

```

```

(LET ((LOOKS# (\WIN FILE)))
(COND
((ZEROP LOOKS#)
NIL)
(T (ELT PARAHASH LOOKS#))
)
)

```

(DEFINEQ

(\TEDIT.GET.OBJECT

```

[LAMBDA (TSTREAM PIECE FILE CURFILEBYTE# BYTELEN) ; Edited 5-Dec-2023 12:28 by rmk
; Edited 26-Nov-2023 10:22 by rmk
; Edited 21-Nov-2023 17:53 by rmk
; Edited 25-Aug-2023 23:07 by rmk
; Edited 12-Oct-2022 14:10 by rmk
; Edited 12-Jun-90 17:50 by mitani

```

```

;; Get an object from FILE
;; TSTREAM = TEXTOBJ are used for the error message and (possibly for default charlooks)
;; CURFILEBYTE# = fileptr within the text section of the file where the object's text starts. On entry the file is positioned just before the object's
;; GETFN in the looks section of the file. On exit, the fileptr points just after the GETFN in the looks section, after having been detoured to the text
;; section for the getfn to read the object's data.

```

```

(LET ((TEXTOBJ (TEXTOBJ TSTREAM))
FILEPTRSAVE GETFN OBJ)
;; rrb 10-AUG-87 --- calculate the length of the image object's data. This assumes that the file is currently pointed at the end of the data
;; which is where the GETFN is written {I think}.
;; RMK: Originally, BYTELEN was calculated here as (DIFFERENCE (GETFILEPTR FILE) CURFILEBYTE#). But this is garbage:
;; (GETFILEPTR FILE) is in the looks section, CURFILEBYTE# is in the text section. The caller knows the true value, now passes it in.
(SETQ GETFN (\ATMIN FILE)) ; The GETFN for this kind of IMAGEOBJ
(SETQ FILEPTRSAVE (GETFILEPTR FILE)) ; Save our file location thru the building of the object
(SETFILEPTR FILE CURFILEBYTE#)
(SETQ OBJ (READIMAGEOBJ FILE GETFN NIL BYTELEN))
(CL:WHEN (IMAGEOBJPROP OBJ 'UNKNOWNGETFN) ; If the object has an unknown getfn property, then it's an
; encapsulated object. Warn the user
(TEDIT.PROMPTPRINT TSTREAM (CONCAT (CL:IF (GETD (IMAGEOBJPROP OBJ 'UNKNOWNGETFN))
"Cannot read image object with GETFN "
"Image object with unknown GETFN ")
(IMAGEOBJPROP OBJ 'UNKNOWNGETFN))
T))
(SETFILEPTR FILE FILEPTRSAVE)
(SETPC PIECE PCONTENTS OBJ)
[FSETPC PIECE PLOOKS (COND
((PREVPIECE PIECE)
(PLOOKS (PREVPIECE PIECE)))
(T (OR (GETTOBJ TEXTOBJ DEFAULTCHARLOOKS)
(\TEDIT.UNIQIFY.CHARLOOKS (CHARLOOKS.FROM.FONT DEFAULTFONT)
TEXTOBJ)
(FSETPC PIECE PTYPE (CL:IF (IMAGEOBJPROP OBJ 'SUBSTREAM)
SUBSTREAM.PTYPE
OBJECT.PTYPE))
OBJ])
)
)

```

;; Putting (pageframe functions on TEDIT-PAGE)

(DEFINEQ

(\TEDIT.PUT.PCTB

```

[LAMBDA (TEXTOBJ CHARSTREAM FORMATSTREAM CONTINUE KEEPSEPARATE) ; Edited 16-Mar-2024 12:40 by rmk
; Edited 11-Mar-2024 00:33 by rmk
; Edited 25-Jan-2024 00:00 by rmk
; Edited 23-Jan-2024 13:43 by rmk
; Edited 13-Jan-2024 19:57 by rmk
; Edited 27-Sep-2023 23:50 by rmk
; Edited 7-Sep-2023 23:43 by rmk
; Edited 30-Apr-2021 14:46 by rmk
; Edited 19-May-99 21:58 by rmk
; Edited 27-May-93 16:00 by sybalsky:mv:envos

```

```

;; Put a representation of a piece table as plaintext on CHARSTREAM, preserving font changes and paragraph looks in a binary
;; FORMATSTREAM. If FORMATSTREAM is not a stream, a stream is created here. FORMATSTREAM=T if an unformatted stream is desired.
;; In that case, the format stream, whether created here or passed in, is not appended to the end of CHARSTREAM
;;
;;
;; The characters and objects in the pieces are put out in the plaintext CHARSTREAM. At the end of each sequence, when the byte positions are
;; known, the hashed look-identifiers are put out to connect the looks back to the character sequences.
;;
;;
;; If a sequence of pieces have equivalent piece properties (same character representation (fat, thin, utf-8 size) and looks) then the the characters
;; of those pieces are concatenated and a single looks record is posted for the whole sequence. For example, a sequence of THINFILE
;; THINSTRING THINFILE pieces may be collapsed if they have the same font, new, etc. (but objects always have individual pieces).
;; Concatenation also stops at paralast sequences.
;;
;;
;; PLEN is the number of characters in the piece, but they occupy different numbers of bytes depending on thin, fat, utf-8...
;;
;;
;; If CONTINUE, return NEWPIECES for continued editing. NEWPIECES is the head of a chain of new pieces that characterize the merged pieces
;; on the file, to reestablish the correspondence between memory pieces and file pieces for continued editing. It is initialized to a throwaway
;; dummy, and NEXTNEW slides down to link in subsequent new pieces. If not CONTINUE, there will be no future editing in CHARSTREAM, no
;; need to build new pieces.
(CL:WHEN (AND KEEPSEPARATE (NOT (STREAMP FORMATSTREAM)))
  (SHOULDNT "FORMATSTREAM not provided with KEEPSEPARATE"))
(CL:WHEN (EQ :UTF-8 (STREAMPROP CHARSTREAM 'FORMAT))
  (\TEDIT.PUT.UTF8.SPLITPIECES TEXTOBJ))
(for PC PREVPC PFILE NEXTNEW RUNLEN PLEN (CURBYTE# _ 0)
  (OLDBYTE# _ 0)
  [UNFORMATTED? _ (PROG1 (EQ FORMATSTREAM T)
    (CL:UNLESS (STREAMP FORMATSTREAM)
      [SETQ FORMATSTREAM (OPENSTREAM '{NODIRCORE} 'BOTH 'NEW
        '(LINELENGTH ,MAX.SMALLP))])
    (NEWPIECES _ (CL:WHEN CONTINUE (create PIECE)))
    (PCCOUNT _ 0)
    (EDITSTENTATIVE _ (GETTEXTPROP TEXTOBJ 'TEDIT.TENTATIVE))
    (LOOKSHASH _ (HASHARRAY 50))
    (PARAHASH _ (HASHARRAY 50))
    (*READTABLE* _ *TEDIT-FILE-READTABLE*)
    (*PRINT-BASE* _ 10)
    (EXTFORMAT _ (GETSTREAMPROP CHARSTREAM 'FORMAT))
    (EOLC _ (fetch (STREAM EOLCONVENTION) of CHARSTREAM))
    (NSHIFTBYTES _ 0)
    inpieces
    (\TEDIT.FIRSTPIECE TEXTOBJ) first
    ;; NSHIFTBYTES is for the continuation, so the new pieces can skip any charset shifting. We can't
    ;; hide them from the getfunction of version 3, since version 3 assumes that pieces are in contiguous
    ;; bytes, we can't bump thePFPOS even though we could deal with it here.
    (SETQ NEXTNEW NEWPIECES)
    ;; All the layout and looks information goes into the LOOKSTREAM, CHARSTREAM is essentially
    ;; plaintext. Unless UNFORMATTED?, APPENDEDSTREAM is appended to the end of
    ;; CHARSTREAM.
    ;; It seems that PCCOUNT isn't incremented for the PARA and CHARLOOKS lists, just for the
    ;; page frame and the actual document pieces.
    (CL:WHEN (FGETTOBJ TEXTOBJ TXTPAGEFRAMES)
      (\TEDIT.PUT.PAGEFRAMES FORMATSTREAM (FGETTOBJ TEXTOBJ TXTPAGEFRAMES)
        )
      (add PCCOUNT 1))
    (\TEDIT.FLUSH.UNUSED.LOOKS TEXTOBJ)
    (\TEDIT.UNIQIFY.ALL TEXTOBJ)
    ; We can now use EQ tests on looks, and the lists may have
    ; been shortened.
    (\TEDIT.PUT.PARALOOKS.LIST FORMATSTREAM PARAHASH (FGETTOBJ TEXTOBJ
      TXTPARALOOKSLIST
      ))
    (\TEDIT.PUT.CHARLOOKS.LIST FORMATSTREAM LOOKSHASH (FGETTOBJ TEXTOBJ
      TXTCHARLOOKSLIST
      ))
    ;; The hash-tables map char and parlooks to unique id numbers
    ;;
    ;; We're ready to put the pieces on the output file.
    (SETQ CURBYTE# (\GETFILEPTR CHARSTREAM))
    (SETQ OLDBYTE# CURBYTE#)
    (SETQ NSHIFTBYTES (CL:WHEN (\TEDIT.FIRSTPIECE TEXTOBJ)
      ; Set up for first piece, possibly hiding shifts.
      (CHARSET CHARSTREAM (CL:IF (THINPIECEP
        (\TEDIT.FIRSTPIECE
        TEXTOBJ))
        0
        T))
      (IDIFFERENCE (\GETFILEPTR CHARSTREAM)
        CURBYTE#)))

```

;; ZEROP should never happen, but...

```

unless (ZEROP (SETQ PLEN (PLEN PC)))
do
;; If there are undescribed characters and PC can't be merged with PREVPC, then finish off PREVPC by writing its character looks. And if
;; PREVPC was the last of a paragraph, put out its PARALOOKS.
(CL:UNLESS (OR (IEQP CURBYTE# OLDBYTE#)
                (\TEDIT.PUT.PCTB.MERGEABLE PREVPC PC EDITSTENTATIVE EXTFORMAT TEXTOBJ))
  (SETQ RUNLEN (IDIFFERENCE CURBYTE# OLDBYTE#))
  (\TEDIT.PUT.CHARLOOKS FORMATSTREAM RUNLEN PREVPC EDITSTENTATIVE LOOKSHASH)
  ;; We've put out all the preceding characters in a sequence of RUNLEN bytes that combined the mergeable pieces.
  (add PCCOUNT 1)
  (CL:WHEN NEWPIECES
    ;; For continued editing, make a new piece that describes those characters as they reside on CHARSTREAM.
    (SETQ NEXTNEW (\TEDIT.PUT.PCTB.NEXTNEW NEXTNEW PREVPC OLDBYTE# RUNLEN EXTFORMAT TEXTOBJ EOLC
                                             NSHIFTBYTES)))
  ;;
  (SETQ NSHIFTBYTES (if (EQ (THINPIECEP PREVPC)
                            (THINPIECEP PC))
    then 0
    else ;; Put out any shifting bytes. Inversion 3 all the file bytes belong to a piece, no skipping.
          (CHARSET CHARSTREAM (CL:IF (THINPIECEP PC)
                                      0
                                      T))
          (IDIFFERENCE (GETFILEPTR CHARSTREAM)
                        CURBYTE#)))
  (SETQ OLDBYTE# CURBYTE#))
(CL:WHEN (OR (NULL PREVPC)
             (PPARALAST PREVPC))
  (\TEDIT.PUT.PARALOOKS FORMATSTREAM PC PARAHASH)
  (add PCCOUNT 1))
(CL:WHEN (MEMB (PTYPE PC)
              FILE.PTYPES)
  (SETQ PFILE (PCONTENTS PC))
  (CL:UNLESS (\GETSTREAM PFILE 'INPUT T)
    (SETQ PFILE (\TEDIT.REOPEN.STREAM TEXTOBJ PFILE)))
  (SETFILEPTR PFILE (PFPOS PC)))
(SELECTC (PTYPE PC)
  (THINFILE.PTYPE
    (for I from 1 to PLEN do (\OUTCHAR CHARSTREAM (BIN PFILE)))
    (STRING.PTYPES
      (for CH instring (PCONTENTS PC) do (\OUTCHAR CHARSTREAM CH)))
    (FATFILE2.PTYPE
      (for I from 1 to PLEN do (\OUTCHAR CHARSTREAM (\WIN PFILE)))
      (FATFILE1.PTYPE
        ;; We read but don't write FATFILE1 pieces, they merge with FATFILE2.
        (for I (CSET _ (LLSH (PCHARSET PC)
                             8))
          from 1 to PLEN do (\OUTCHAR CHARSTREAM (LOGOR CSET (BIN PFILE)
                                                             UTF8.PTYPE (for I from 1 to PLEN do (\OUTCHAR CHARSTREAM (UTF8.INCCODEFN PFILE))))
          (OBJECT.PTYPE
            (\TEDIT.PUT.OBJECT PC CHARSTREAM FORMATSTREAM CURBYTE#)
            (CL:WHEN NEWPIECES
              (SETQ NEXTNEW (FSETPC NEXTNEW NEXTPIECE (create PIECE using PC PREVPiece _
                                                                    NEXTNEW))))
            (add PCCOUNT 1)
            ;; 0 indicates that nothing special needs to be done to recover the looks of this piece, its index will be written on
            ;; the next iteration. In earlier versions the value 1 indicated that the looks were not indexed and therefore had to
            ;; be written explicitly here. This byte won't be needed in the next version of the format.
            (BOUT FORMATSTREAM 0)
            ;; RMK: Upping OLDBYTE# suppresses the natural charlooks that ought to happen on the next iteration if we just
            ;; go around the loop. But things get screwed up if we take this out, even though OLDBYTE#. Possibly the extra 0
            ;; byte makes it think that the object is bigger than it is? I really don't understand why it fails if this is left out.
            (SETQ OLDBYTE# (\GETFILEPTR CHARSTREAM)))
            (SHOULDNT "OTHER PTYPES"))
  (SETQ CURBYTE# (\GETFILEPTR CHARSTREAM))
  (SETQ PREVPC PC)
finally (CL:UNLESS (IEQP OLDBYTE# CURBYTE#)
  (SETQ RUNLEN (IDIFFERENCE CURBYTE# OLDBYTE#))
  (\TEDIT.PUT.CHARLOOKS FORMATSTREAM RUNLEN PREVPC EDITSTENTATIVE LOOKSHASH)
  (CL:WHEN NEWPIECES (\TEDIT.PUT.PCTB.NEXTNEW NEXTNEW PREVPC OLDBYTE# RUNLEN EXTFORMAT TEXTOBJ
                                                  EOLC NSHIFTBYTES))
  (add PCCOUNT 1))
;; Finalize and append FORMATSTREAM unless unformatted or keepseparate (for splitting). If KEEPSEPARATE, the caller must have
;; provided the formatstream
(CL:UNLESS UNFORMATTED?
  (\TEDIT.PUT.TRAILER FORMATSTREAM (\GETFILEPTR CHARSTREAM)
    PCCOUNT 3))

```

```

(CL:UNLESS (OR UNFORMATTED? KEEPSEPARATE)
 (COPYBYTES FORMATSTREAM CHARSTREAM 0 (GETEOFPTR FORMATSTREAM)))
;; Throw away the dummy head of the new piece chain (NEWPIECES is NIL if not continuing). The caller must make newpieces safe
;; and then installed them.
(RETURN (AND NEWPIECES (NEXTPIECE NEWPIECES)))

```

(TEDIT.PUT.TRAILER

```

[LAMBDA (FORMATSTREAM PIECESTART PCCOUNT VERSION) ; Edited 13-Jan-2024 10:13 by rmk
;; Finalize FORMATSTREAM. We sneak in the date here--at the end of the looks, after the last look but before the final pointers, so that it doesn't
;; interfere with anything. TEDIT.FILEDATE pulls it out if it's there.
(PRIN1 "DATE:" FORMATSTREAM)
(\DWOUT FORMATSTREAM (IDATE))
(\DWOUT FORMATSTREAM PIECESTART) ; Position of the first piece
(\WOUT FORMATSTREAM PCCOUNT) ; Number of pieces followed by the password
(\WOUT FORMATSTREAM (IPLUS 31415 VERSION)])

```

(TEDIT.PUT.PCTB.MERGEABLE

```

[LAMBDA (PREVPC PC EDITSTENTATIVE EXTFORMAT TEXTOBJ) ; Edited 23-Jan-2024 09:12 by rmk
; Edited 12-Jan-2024 09:46 by rmk
; Edited 5-Jan-2024 11:34 by rmk
; Edited 30-Dec-2023 00:44 by rmk
; Edited 22-Sep-2023 10:12 by rmk
; Edited 6-Sep-2023 00:03 by rmk
; Edited 24-Aug-2023 11:03 by rmk

;; True if PREVPC and PC have enough properties in common so they can be concatenated together into a single new piece on a file. The
;; PPARALOOKS test allows for the possibility that different pieces in a paragraph might have different formatting (e.g. tab stops)--but that will
;; mess up assumptions that the paragraph menu and maybe other things depend on. Object pieces and pieces with different looks can never
;; merge.
(LET ((PREVTYPE (PTYPE PREVPC))
      (PCTYPE (PTYPE PC)))
  (CL:UNLESS [OR (EQ OBJECT.PTYPE PREVTYPE)
                 (EQ OBJECT.PTYPE PCTYPE)
                 (NEQ (PLOOKS PREVPC)
                      (PLOOKS PC))
                 (NEQ (PPARALOOKS PREVPC)
                      (PPARALOOKS PC))
                 (PPARALAST PREVPC)
                 (AND EDITSTENTATIVE (NEQ (PNEW PREVPC)
                                           (PNEW PC)))]
    ;; PC cannot merge with PREVPC if PREVPC ends in EOL (even if not PPARALAST). (We assume here that EOL's of interest appear
    ;; only in last-of-piece position.) For some input piece types we can make the decision without bothering to look at their last character.
    ;; If the destination EXTFORMAT is :UTF-8, the splitter has presumably arranged it so that EOL's only appear in thin string and file
    ;; pieces.
    [AND (SELECTQ EXTFORMAT
      (:XCCS ;; All thin strings and files are mergeable, all fat pieces are mergeable, since they all go to FAT2.
        (EQ (THINPIECEP PREVPC)
            (THINPIECEP PC)))
      (:UTF-8 ;; UTF8 pieces with the same bytesperchar are mergeable. We rely on \TEDIT.PUT.UTF8.SPLITPIECES to
        ;; examine string pieces and split thin strings that include mixtures of Ascii and non-Ascii characters, and to
        ;; split fat pieces that may contain Ascii character in 2-byte form. After splitting all pieces with the same
        ;; PUTF8BYTESPERCHAR can be merged.
        (EQ (FGETPC PREVPC PUTF8BYTESPERCHAR)
            (FGETPC PC PUTF8BYTESPERCHAR)))
      NIL)
    (OR (EQ PREVTYPE UTF8.PTYPE)
      (AND (EQ PREVTYPE FATFILE1.PTYPE)
        (NEQ 0 (PCHARSET PREVPC)))
      [AND (EQ EXTFORMAT :UTF-8)
        (NOT (MEMB PREVTYPE (CONSTANT (LIST THINFILE.PTYPE THINSTRING.PTYPE)
          (NOT (MEMB (\TEDIT.PIECE.NTHCHARCODE TEXTOBJ PREVPC (SUB1 (PLEN PREVPC)))
                    (CHARCODE (EOL LF))))))

```

(TEDIT.PUT.UTF8.SPLITPIECES

```

[LAMBDA (TEXTOBJ) ; Edited 17-Mar-2024 00:14 by rmk
; Edited 3-Feb-2024 14:52 by rmk
; Edited 11-Jan-2024 23:29 by rmk
; Edited 5-Jan-2024 11:37 by rmk
; Edited 30-Dec-2023 11:27 by rmk

;; We are putting to a UTF-8 format file. This function splits pieces if necessary to ensure that all the characters in a piece map to Unicode
;; characters with the same-length UTF8 encoding. That length is stored in PUTF8BYTESPERCHAR.
(for PC inpieces (\TEDIT.FIRSTPIECE TEXTOBJ)
  do (SELECTC (PTYPE PC)
    (UTF8.PTYPE (FSETPC PC PUTF8BYTESPERCHAR (PBYPESPERCHAR PC)))
    (STRING.PTYPES
      (for CH BPC instring (PCONTENTS PC) as I from 1
        do ;; If BPC changes, split off and mark the prefix piece with the previous value, go back to the main loop to continue on
          ;; the residual suffix piece.

```

```

    (if (EQ I 1)
      then (SETQ BPC (NUTF8-CODE-BYTES (UNICODE.TRANSLATE CH *XCCSTOUNICODE*)))
            (FSETPC PC PUTF8BYTESPERCHAR BPC)
            ; The first character defines the piece
      elseif (EQ BPC (NUTF8-CODE-BYTES (UNICODE.TRANSLATE CH *XCCSTOUNICODE*)))
      else (\TEDIT.SPLITPIECE PC (SUB1 I)
            TEXTOBJ)
            (SETQ PC (PREVPIECE PC)) ; Prefix piece always exists since I>1
            (FSETPC PC PUTF8BYTESPERCHAR BPC)
            ; Mark it, iteration continues on its next.
            (RETURN)))
  (THINFILE.PTYPE
   (CL:UNLESS (EQ :UTF-8 (GETSTREAMPROP (PCONTENTS PC)
                                         'FORMAT)) ; Could be above Ascii
     (for I BPC (PFILE _ (PCONTENTS PC)) from 1 to (PLEN PC) first (\SETFILEPTR PFILE
                                                                              (PFPOS PC))
      do (if (EQ I 1)
        then (SETQ BPC (NUTF8-CODE-BYTES (UNICODE.TRANSLATE (BIN PFILE)
                                                                *XCCSTOUNICODE*)))
              (FSETPC PC PUTF8BYTESPERCHAR BPC)
        elseif (EQ BPC (NUTF8-CODE-BYTES (UNICODE.TRANSLATE (BIN PFILE)
                                                                *XCCSTOUNICODE*)))
        else (\TEDIT.SPLITPIECE PC (SUB1 I)
              TEXTOBJ)
              (SETQ PC (PREVPIECE PC))
              (FSETPC PC PUTF8BYTESPERCHAR BPC)
              (RETURN))))
    ((LIST FATFILE2.PTYPE FATFILE1.PTYPE) ; XCCS pieces
     (for I BPC CH (PFILE _ (PCONTENTS PC)) from 1 to (PLEN PC) first (\SETFILEPTR PFILE (PFPOS PC))
      do (SETQ CH (LOGOR (LLSH (CL:IF (EQ FATFILE2.PTYPE (PTYPE PC))
                                     (BIN PFILE)
                                     (PCHARSET PC))
                           8)
                        (BIN PFILE))))
    (if (EQ I 1)
      then (SETQ BPC (NUTF8-CODE-BYTES (UNICODE.TRANSLATE CH *XCCSTOUNICODE*)))
            (FSETPC PC PUTF8BYTESPERCHAR BPC)
      elseif (EQ BPC (NUTF8-CODE-BYTES (UNICODE.TRANSLATE CH *XCCSTOUNICODE*)))
      else (\TEDIT.SPLITPIECE PC (SUB1 I)
            TEXTOBJ)
            (SETQ PC (PREVPIECE PC))
            (FSETPC PC PUTF8BYTESPERCHAR BPC)
            (RETURN)))
  NIL))

```

(\TEDIT.PUT.PCTB.NEXTNEW

```

[LAMBDA (NEXTNEW PREVPC OLDBYTE# RUNLEN EXTFORMAT TEXTOBJ EOLC NSHIFTBYTES)
; Edited 24-Jan-2024 23:29 by rmk
; Edited 23-Jan-2024 15:24 by rmk
; Edited 21-Jan-2024 10:34 by rmk
; Edited 12-Jan-2024 16:24 by rmk
; Edited 5-Jan-2024 17:46 by rmk
; Edited 30-Dec-2023 21:56 by rmk

```

;; This updates the piece chain for continued editing.

;; Note that the PCONTENTS (= PFILE) field for these file pieces isn't filled in, that has to be done after CHARSTREAM is closed and reopened at
;; the TEDIT.PUT level. For the same reason, PBINABLE isn't set here.

```
(SETQ RUNLEN (IDIFFERENCE RUNLEN NSHIFTBYTES))
```

;; PREVPC is never an object piece.

```
(FSETPC NEXTNEW NEXTPIECE (SETQ NEXTNEW (create PIECE using PREVPC PFPOS _ (IPLUS NSHIFTBYTES OLDBYTE#)
                                                                    PBYTELEN _ RUNLEN PREVPIECE _ NEXTNEW)))
```

```
(SELECTQ EXTFORMAT
```

```
  (:UTF-8 (FSETPC NEXTNEW PTYPE (CL:IF (EQ 1 (FGETPC PREVPC PUTF8BYTESPERCHAR))
                                       THINFILE.PTYPE
                                       UTF8.PTYPE))
    (FSETPC NEXTNEW PBYTESPERCHAR (FGETPC PREVPC PUTF8BYTESPERCHAR)))
  (:XCCS
```

```
    (FSETPC NEXTNEW PTYPE (SELECTC (PTYPE PREVPC)
                                   (THINSTRING.PTYPE
                                    THINFILE.PTYPE)
                                   ((LIST FATSTRING.PTYPE FATFILE1.PTYPE)
                                    (FSETPC NEXTNEW PBYTESPERCHAR 2)
                                    (FSETPC NEXTNEW PCHARSET \NORUNCODE)
                                    FATFILE2.PTYPE)
                                   (PTYPE PREVPC))))
    ; String pieces can be merged with corresponding file pieces

```

```

    (HELP "EXTERNAL FORMAT NOT RECOGNIZED" EXTFORMAT) ; Accumulate PLEN across merged pieces
    (FSETPC NEXTNEW PLEN (IQUOTIENT RUNLEN (PBYTESPERCHAR NEXTNEW)))
    (CL:UNLESS (EQ EOLC CR.EOLC) ; The file may have LF, but we want to restore EOL internally
      (CL:WHEN [AND (EQ THINFILE.PTYPE (PTYPE NEXTNEW))
                    (EQ (CHARCODE EOL)
                        (\TEDIT.PIECE.NTHCHARCODE TEXTOBJ PREVPC (PLEN PREVPC))]
        (if (EQ 1 (PLEN NEXTNEW))
          then (FSETPC NEXTNEW PTYPE THINSTRING.PTYPE)
              (FSETPC NEXTNEW PCONTENTS (ALLOCSTRING 1 (CHARCODE EOL))))

```

```

      else (add (FGETPC NEXTNEW PLEN)
                -1)
            ; We know it's thin, maybe paralast
      (add (FGETPC NEXTNEW PBYTELEN)
            -1)
      (SETQ NEXTNEW (\TEDIT.MAKE.STRINGPIECE NEXTNEW (CHARCODE EOL)))
      (FSETPC (PREVPiece NEXTNEW)
              PPARALAST NIL)))
NEXTNEW])

```

(\TEDIT.INSERT.NEWPIECES

[LAMBDA (STREAM TEXTOBJ NEWPIECES)

```

; Edited 20-Mar-2024 10:59 by rmk
; Edited 17-Mar-2024 12:06 by rmk
; Edited 5-Feb-2024 09:24 by rmk
; Edited 3-Feb-2024 23:59 by rmk
; Edited 21-Jan-2024 09:21 by rmk
; Edited 12-Jan-2024 21:06 by rmk
; Edited 18-Dec-2023 17:00 by rmk
; Edited 11-Nov-2023 16:31 by rmk
; Edited 8-Sep-2023 16:32 by rmk

```

```

;; This makes the pieces and BTREE of TEXTOBJ consistent with the NEWPIECES chain and the new STREAM. The character numbers of old
;; and new pieces correspond, so editing can continue without updating panes, lines, or selections (which are all based on character numbers, not
;; particular pieces). This puts STREAM as the PFILE of each new file piece and then installs NEWPIECES in TEXTOBJ, replacing the BTREE
;; and pieces already there.

```

(TEXTOBJ! TEXTOBJ)

;; The \SETFILEPTR translates TSTREAM's buffer parameters to the new file.

```

(LET ((TSTREAM (GETTOBJ TEXTOBJ STREAMHINT))
      FILEPTR)
  (SETQ FILEPTR (\TEDIT.TEXTGETFILEPTR TSTREAM))
  (for PC (SBINABLE _ (fetch (STREAM BINABLE) of STREAM))
    inpieces NEWPIECES when (MEMB (PTYPE PC)
                                   FILE.PTYPES)
    do (FSETPC PC PCONTENTS STREAM)
        (CL:WHEN (EQ THINFILE.PTYPE (PTYPE PC))
          (FSETPC PC PBINABLE SBINABLE))))
  ; Restore the editing parameters
  ; Non-object pieces are on OFILE

```

```

;; Here, finally, we toss the out-of-date pieces to install the new ones. For complete safety, the rest should be uninterruptable (although the
;; file has just been saved, so nothing would really be lost)

```

```

(\TEDIT.MAKEPCTB TEXTOBJ)
(\TEDIT.INSERTPIECES NEWPIECES NIL TEXTOBJ)
; Build the tree, then fix the stream

```

```

;; This guards against the possibility that a sequence of edits somehow got the positioning parameters cached in the stream out of step with
;; the document. This ensures that they are consistent after all the pieces have been written out.

```

(\TEDIT.TEXTSETFILEPTR TSTREAM (IMAX 0 (IMIN FILEPTR (FGETTOBJ TEXTOBJ TEXTLEN))

(\TEDIT.PUTRESET

```

[LAMBDA (PROC&VALUE)
  (CONS (CAR PROC&VALUE)
        (PROCESSPROP (CAR PROC&VALUE)
                      'BEFOREEXIT
                      (CDR PROC&VALUE]))

```

(* jds "15-May-85 16:38")

(\ARBOUT

[LAMBDA (STREAM ITEM)

```

; Edited 19-Dec-2023 10:14 by rmk
; Edited 7-Sep-2023 09:06 by rmk
; Edited 20-Apr-88 19:55 by jds

```

```

;; Write an arbitrary MKSTRING-able thing in length-contents form. SIZE is in characters, not bytes, which is OK because \STRINGIN uses
;; READCCODE.

```

```

(LET [(SIZE (AND ITEM (NCHARS ITEM T *TEDIT-FILE-READTABLE*)
                  (\WOUT STREAM (OR SIZE 0))
                  (OR (NOT ITEM)
                      (ZEROP SIZE)
                      (PRIN2 ITEM STREAM *TEDIT-FILE-READTABLE*))
                  NIL])

```

(\ATMOUT

[LAMBDA (STREAM ATOM)

```

; Edited 19-Dec-2023 10:14 by rmk
(* jds "30-Jan-85 14:46")
(* Write an atom's characters in length-contents form.)

```

```

(\WOUT STREAM (COND
  (ATOM (NCHARS ATOM))
  (T 0)))
(OR (NOT ATOM)
  (ZEROP (NCHARS ATOM))
  (for CH inatom ATOM do (\BOUT STREAM CH]))

```

(\DWOUT

```

[LAMBDA (FILE NUMBER)
  (\BOUT FILE (LOGAND 255 (LRSH NUMBER 24)))
  (\BOUT FILE (LOGAND 255 (LRSH NUMBER 16)))

```

(* jds "3-JAN-83 15:30")

```
(\BOUT FILE (LOGAND 255 (LRSH NUMBER 8)))
(\BOUT FILE (LOGAND 255 NUMBER])
```

(\STRINGOUT

[LAMBDA (STREAM STRING LEN)

```
; Edited 19-Dec-2023 10:14 by rmk
(* jds " 1-May-84 11:58")
```

(* Write a string on a file in length-contents form; one word for the length, and one byte per character contained.)

```
(SETQ LEN (OR LEN (NCHARS STRING)))
(\WOUT STREAM LEN)
(OR (ZEROP LEN)
  (for CH instrng STRING as I from 1 to LEN do (\BOUT STREAM CH])
```

)

(DEFINEQ

(\TEDIT.PUT.CHARLOOKS.LIST

[LAMBDA (LOOKSFILE LOOKSHASH LOOKSLIST LOOKSHASH)

```
; Edited 19-Dec-2023 10:14 by rmk
; Edited 25-Aug-2023 11:39 by rmk
; Edited 15-Aug-2023 23:08 by rmk
(* jds " 5-Mar-85 15:58")
; Write the list of CHARLOOKSs into the font file.
```

```
:: Returns a hasharray that will map from a given CHARLOOKS to its index in the list. Those position numbers are then written in the individual
;; piece descriptions, and are used to reconstruct the piece looks when the file is read back in. These descriptions are written in a 0-character
;; pseudo-piece
```

```
(\DWOUT LOOKSFILE 0) ; No characters, marked as containing the list of CHARLOOKSs
(\WOUT LOOKSFILE \PieceDescriptorCHARLOOKSLIST)
(\WOUT LOOKSFILE (FLENGTH LOOKSLIST)) ; Number of charlooks to follow
(for I from 1 as LOOKS in LOOKSLIST do ; Write each charlooks, in the order they appear in the list.
```

```
(\TEDIT.PUT.SINGLE.CHARLOOKS LOOKSFILE LOOKS)
(PUTHASH LOOKS I LOOKSHASH])
```

(\TEDIT.PUT.SINGLE.CHARLOOKS

[LAMBDA (FORMATSTREAM LOOKS)

```
; Edited 16-Jan-2024 23:07 by rmk
; Edited 21-Dec-2023 23:54 by rmk
; Edited 19-Dec-2023 10:14 by rmk
; Edited 26-Aug-2023 11:29 by rmk
; Edited 15-Aug-2023 23:17 by rmk
; Edited 30-May-91 20:26 by jds
```

;; Put out a single CHARLOOKS description.

```
(LET ((FILEPOS (GETFILEPTR FORMATSTREAM))
      (FONT (fetch (CHARLOOKS CLFONT) of LOOKS))
      LEN)
  (\WOUT FORMATSTREAM 0) ; Reserve space for the length of this looks
  [COND
    ((type? FONTCLASS FONT) ; For font classes, we need to save a list of device-FD sets
     (\ABOUT FORMATSTREAM (FONTCLASSUNPARSE FONT)))
    (T ; For FONTDESCRIPTORS, do it the easy way
     (\ATMOUT FORMATSTREAM (FONTPROP FONT 'FAMILY) ; The font family
      (\WOUT FORMATSTREAM (OR (FONTPROP FONT 'SIZE)
                              0)) ; Size of the type, in points
      (\SMALLPOUT FORMATSTREAM (OR (fetch (CHARLOOKS CLOFFSET) of LOOKS)
                                   0)) ; Super/subscripting distance
      (COND
        ([AND (fetch (CHARLOOKS CLSTYLE) of LOOKS)
              (NOT (ZEROP (fetch (CHARLOOKS CLSTYLE) of LOOKS)
                               (\ABOUT FORMATSTREAM (fetch (CHARLOOKS CLSTYLE) of LOOKS)))
              (T (\WOUT FORMATSTREAM 0)))
        (COND
          ((fetch (CHARLOOKS CLUSERINFO) of LOOKS)
           (\ABOUT FORMATSTREAM (fetch (CHARLOOKS CLUSERINFO) of LOOKS)))
          (T (\WOUT FORMATSTREAM 0)))
        (\WOUT FORMATSTREAM (LOGOR (CL:IF (fetch (CHARLOOKS CLUNBREAKABLE) of LOOKS)
                                           4096
                                           0)
                                   (CL:IF (fetch (CHARLOOKS CLLEADER) of LOOKS)
                                           2048
                                           0)
                                   (CL:IF (fetch (CHARLOOKS CLINVERTED) of LOOKS)
                                           1024
                                           0)
                                   (CL:IF (fetch (CHARLOOKS CLBOLD) of LOOKS)
                                           512
                                           0)
                                   (CL:IF (fetch (CHARLOOKS CLITAL) of LOOKS)
                                           256
                                           0)
                                   (CL:IF (fetch (CHARLOOKS CLULINE) of LOOKS)
                                           128
                                           0))
```



```

(CL:IF (fetch (CHARLOOKS CLOLINE) of LOOKS)
  64
  0)
(CL:IF (fetch (CHARLOOKS CLSTRIKE) of LOOKS)
  32
  0)
(CL:IF (fetch (CHARLOOKS CLSMALLCAP) of LOOKS)
  16
  0)
(CL:IF (fetch (CHARLOOKS CLPROTECTED) of LOOKS)
  8
  0)
(CL:IF (fetch (CHARLOOKS CLINVISIBLE) of LOOKS)
  4
  0)
(CL:IF (fetch (CHARLOOKS CLSELHERE) of LOOKS)
  2
  0)
(CL:IF (fetch (CHARLOOKS CLCANCOPY) of LOOKS)
  1
  0)))

```

;; Now go fill in the length field at the front of the LOOKS. (ALL looks info should be written out BEFORE this comment.)

```

(SETQ LEN (IDIFFERENCE (GETFILEPTR FORMATSTREAM)
  FILEPOS))
(SETFILEPTR FORMATSTREAM FILEPOS)
(\WOUT FORMATSTREAM LEN)
(SETFILEPTR FORMATSTREAM -1])

```

; The length of this set of looks
; Go write the length field
; And back to the end of the file

(\TEDIT.PUT.CHARLOOKS

```
[LAMBDA (FORMATSTREAM BYTELEN PREVPC EDITSTENTATIVE LOOKSHARRAY)
```

```

; Edited 13-Jan-2024 16:35 by rmk
; Edited 30-Dec-2023 16:25 by rmk
; Edited 23-Aug-2023 22:27 by rmk
; Edited 24-Jul-2023 17:21 by rmk
; Edited 8-Sep-2022 22:54 by rmk
; Edited 30-May-91 21:45 by jds

```

;; Put a description of PREVPC's charlooks into FORMATSTREAM. The looks apply to bytes OLDBYTE# thru CURBYTE#-1

```

(\DTEST PREVPC 'PIECE)
(\TEDIT.PUT.CHARLOOKS1 FORMATSTREAM BYTELEN (GETHASH (PLOOKS PREVPC)
  LOOKSHARRAY)
  (AND EDITSTENTATIVE PREVPC (PNEW PREVPC))
  (EQ FATFILE2.PTYPE (PTYPE PREVPC)))

```

(\TEDIT.PUT.CHARLOOKS1

```
[LAMBDA (FORMATSTREAM BYTELEN CHARLOOKSINDEX NEW FAT)
```

```
; Edited 13-Jan-2024 16:36 by rmk
```

;; Put out the actual bytes to represent a piece with the indicated properties. This is split out as a separate helper function to hide Tedit innards
;; from Lafite when it makes its dummy piece entries (LA.ADJUST.FORMATting).

```

(\DWOUT FORMATSTREAM BYTELEN)
(\WOUT FORMATSTREAM \PieceDescriptorLOOKS)

```

```

; The length of this piece run
; Mark this as setting the piece's looks

```

;; Flag for newness and fatness

```

(\BOUT FORMATSTREAM (LOGOR (CL:IF NEW
  1
  0)
  (CL:IF FAT
  2
  0)))

```

```
; The index into the list of fonts
```

```
(\WOUT FORMATSTREAM CHARLOOKSINDEX])
```

(\TEDIT.PUT.OBJECT

```
[LAMBDA (PIECE CHARSTREAM FORMATSTREAM CURFILEBYTE#)
```

```

; Edited 24-Jan-2024 23:35 by rmk
; Edited 13-Jan-2024 12:20 by rmk
; Edited 19-Dec-2023 10:14 by rmk
; Edited 26-Aug-2023 15:13 by rmk
; Edited 17-Jul-2023 16:39 by rmk
; Edited 6-Aug-2022 10:02 by rmk
; Edited 12-Jun-90 17:49 by mitani

```

;; Given a piece which describes an object, put the object out there.

```

(LET ((OBJECT (PCONTENTS PIECE))
  (ORIGFILEPTR (GETFILEPTR FORMATSTREAM))
  BYTELEN)
  (\DWOUT FORMATSTREAM 0)
  (\WOUT FORMATSTREAM \PieceDescriptorOBJECT)
  (\ATMOUT FORMATSTREAM (IMAGEOBJPROP OBJECT 'GETFN))
  (APPLY* (IMAGEOBJPROP OBJECT 'PUTFN)
    OBJECT CHARSTREAM)
  (SETQ BYTELEN (IDIFFERENCE (GETEOFPTR CHARSTREAM)
    CURFILEBYTE#))
  (SETFILEPTR FORMATSTREAM ORIGFILEPTR))

```

```

; Placeholder for byte-length of the object's description
; Mark this as setting the piece's looks
; The FN to apply to reconstruct the object

```

```

; Now go back and fill in the length of the text description of the
; object.

```

```

(\DWOUT FORMATSTREAM BYTELEN)
(SETFILEPTR FORMATSTREAM -1)
(CL:WHEN (RANDACCESSP CHARSTREAM)
  (SETFILEPTR CHARSTREAM -1))
BYTELEN])

```

; Move back to the end of the looks file
; And the end of CHARSTREAM

)

(DEFINEQ

(\TEDIT.PUT.PARALOOKS.LIST

```

[LAMBDA (LOOKSFILE PARAHASH PARALOOKS)

```

; Edited 19-Dec-2023 10:14 by rmk
; Edited 25-Aug-2023 11:39 by rmk
; Edited 15-Aug-2023 23:25 by rmk
; Edited 1-Sep-87 20:34 by jds

;; Write out the looks in a no-characters pseudo-piece, producing a hashtable of their arbitrary indexes for future reference.

```

(\DWOUT LOOKSFILE 0)
(\WOUT LOOKSFILE \PieceDescriptorPARALOOKSLIST)
(\WOUT LOOKSFILE (FLENGTH PARALOOKS))
(for I from 1 as PL in PARALOOKS do (\TEDIT.PUT.SINGLE.PARALOOKS LOOKSFILE PL)
  (PUTHASH PL I PARAHASH])

```

(\TEDIT.PUT.SINGLE.PARALOOKS

```

[LAMBDA (FONTFILE LOOKS)

```

; Edited 16-Jan-2024 23:00 by rmk
; Edited 19-Dec-2023 10:14 by rmk
; Edited 16-Aug-2023 22:11 by rmk
; Edited 3-Mar-2023 23:25 by rmk
; Edited 2-Jul-93 21:30 by sybalsky:MV:ENVOS

;; Put a description of LOOKS into FILE.

```

(LET ((FILEPOS (GETFILEPTR FONTFILE))
      DEFTAB TABSPECS LEN)
  (\SMALLPOUT FONTFILE 0)
  (\SMALLPOUT FONTFILE (fetch (FMTSPEC 1STLEFTMAR) of LOOKS))
  (\SMALLPOUT FONTFILE (fetch (FMTSPEC LEFTMAR) of LOOKS))
  (\SMALLPOUT FONTFILE (fetch (FMTSPEC RIGHTMAR) of LOOKS))
  (\SMALLPOUT FONTFILE (fetch (FMTSPEC LEADBEFORE) of LOOKS))
  (\SMALLPOUT FONTFILE (fetch (FMTSPEC LEADAFTER) of LOOKS))
  (\SMALLPOUT FONTFILE (fetch (FMTSPEC LINELEAD) of LOOKS))
  (SETQ DEFTAB (CAR (fetch (FMTSPEC TABSPEC) of LOOKS)))
  (SETQ TABSPECS (CDR (fetch (FMTSPEC TABSPEC) of LOOKS)))
  ;; Indicate whether there are tab specs or a default tab setting to save
  (\BOUT FONTFILE (CL:IF (OR DEFTAB TABSPECS)
    3
    2))
  (\BOUT FONTFILE (SELECTQ (fetch (FMTSPEC QUAD) of LOOKS)
    (LEFT 1)
    (RIGHT 2)
    ((CENTER CENTERED)
     3)
    ((JUST JUSTIFIED)
     4)
    (SHOULDNT)))
  (CL:WHEN (OR TABSPECS DEFTAB)
    (\SMALLPOUT FONTFILE (OR DEFTAB 0))
    (CL:WHEN (IGREATERP (LENGTH TABSPECS)
      255)
      (SHOULDNT "Paragraph has more than 255 TABs set--can't be saved."))
    (\BOUT FONTFILE (LENGTH TABSPECS))
    [for TAB in TABSPECS do (\SMALLPOUT FONTFILE (fetch TABX of TAB)
      (\BOUT FONTFILE (SELECTQ (fetch TABKIND of TAB)
        (LEFT 0)
        (RIGHT 1)
        (CENTERED 2)
        (DECIMAL 3)
        (DOTTEDLEFT 4)
        (DOTTEDRIGHT 5)
        (DOTTEDCENTERED
         6)
        (DOTTEDDECIMAL
         7)
        (SHOULDNT]))
        (\SMALLPOUT FONTFILE (OR (fetch (FMTSPEC FMTSPECIALX) of LOOKS)
          0))
        (\SMALLPOUT FONTFILE (OR (fetch (FMTSPEC FMTSPECIALY) of LOOKS)
          0))
        (\ARBOUT FONTFILE (fetch (FMTSPEC FMTUSERINFO) of LOOKS))
        (\ATMOUT FONTFILE (fetch (FMTSPEC FMTPARATYPE) of LOOKS))

```

; Reserve space to store the look length
; Left margin for the first line of the paragraph
; Left margin for the rest of the paragraph
; Right margin for the paragraph
; Leading before the paragraph
; Lead after the paragraph
; inter-line leading
; There are tab specs to save.
; Setting and tab type.

```
(\ATMOUT FONTFILE (fetch (FMTSPEC FMTPARASUBTYPE) of LOOKS))
(\ARBOUT FONTFILE (fetch (FMTSPEC FMTSTYLE) of LOOKS))
(\ARBOUT FONTFILE (fetch (FMTSPEC FMTCHARSTYLES) of LOOKS))
(\ARBOUT FONTFILE (fetch (FMTSPEC FMTNEWPAGEBEFORE) of LOOKS))
(\ARBOUT FONTFILE (fetch (FMTSPEC FMTNEWPAGEAFTER) of LOOKS))
(\ARBOUT FONTFILE (fetch (FMTSPEC FMTHEADINGKEEP) of LOOKS))
(\ARBOUT FONTFILE (fetch (FMTSPEC FMTKEEP) of LOOKS))
(\ARBOUT FONTFILE (fetch (FMTSPEC FMTBASETOBASE) of LOOKS))
(\ARBOUT FONTFILE (fetch (FMTSPEC FMTREVISED) of LOOKS))
(\ARBOUT FONTFILE (fetch (FMTSPEC FMTCOLUMN) of LOOKS))
(\ARBOUT FONTFILE (fetch (FMTSPEC FMTCHARSTYLES) of LOOKS))
```

;;; Now go fill in the length field at the front of the LOOKS. (ALL looks info should be written out BEFORE this comment.)

```
(SETQ LEN (IDIFFERENCE (GETFILEPTR FONTFILE)
                        FILEPOS))
(SETFILEPTR FONTFILE FILEPOS)
(\SMALLPOUT FONTFILE LEN)
(SETFILEPTR FONTFILE -1])
```

; The length of this set of looks
; Write the length field
; And back to the end of the file

(\TEDIT.PUT.PARALOOKS

```
[LAMBDA (LOOKSFILE PC PARAHASH)
```

; Edited 19-Dec-2023 10:14 by rmk
; Edited 25-Aug-2023 11:41 by rmk
; Edited 3-Mar-2023 23:28 by rmk
; Edited 30-May-91 21:44 by jds

;; Put the identifier of PC's paralooks into LOOKSFILE. This applies to characters CH1 thru CHLIM-1

```
(\DWOUT LOOKSFILE 0)
(\WOUT LOOKSFILE \PieceDescriptorPARA)
(\WOUT LOOKSFILE (OR (FIXP PC)
                     (GETHASH (PPARALOOKS PC)
                              PARAHASH]))
```

; Place holder for number of characters in the piece -- really
; taken from the charlooks.
; Identify this as a paragraph looks piece

)

```
(DECLARE%: DOEVAL@COMPILE DONTCOPY
```

```
(GLOBALVARS TEDIT.INPUT.FORMATS *TEDIT-FILE-READTABLE*)
)
```

```
(DEFINEQ
```

(TEDITFROMLISPSOURCE

```
[LAMBDA (SOURCEFILE TSTREAM PROPS USERTEMP START END)
```

; Edited 25-Dec-2023 12:28 by rmk
; Edited 5-Dec-2023 23:46 by rmk
; Edited 26-Oct-2023 11:22 by rmk
; Edited 22-Oct-2023 22:55 by rmk
; Edited 22-Sep-2023 09:07 by rmk

;; This is called because OPENTEXTSTREAM recognized that SOURCESTREAM is a LISPSOURCEP foreign-format file. TSTREAM may have a
;; partially instantiated attached window with region and prompt, etc., but may not yet have the properties of a text or process.

;; TSTREAM and its window are available to provide default looks and region for the empty stream

;; USERTEMP is the reader environment returned by LISPSOURCEFILEP

```
(CL:UNLESS TSTREAM
  (SETQ TSTREAM (OPENTEXTSTREAM)))
```

;; An empty window for TSTREAM may already be up on the screen. Since this conversion can take awhile, we tell the user what's going on

```
(TEDIT.PROMPTPRINT TSTREAM (CONCAT "Fetching " (FULLNAME SOURCEFILE)
                                   " ..."))
T)
(COPY.TEXT.TO.IMAGE SOURCEFILE TSTREAM)
(TEDIT.PROMPTCLEAR TSTREAM)
(TEXTPROP TSTREAM 'BOUNDTABLE (TEDIT.ATOMBOUND.READTABLE (fetch (READER-ENVIRONMENT REREADTABLE) of USERTEMP)
                                                                )))
TSTREAM])
```

)

```
(ADDTOTVAR TEDIT.INPUT.FORMATS (LISPSOURCEFILEP TEDITFROMLISPSOURCE))
```

```
(RPAQ? *TEDIT-FILE-READTABLE* (COPYREADTABLE \ORIGREADTABLE))
```

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-----------------	---	------------------	---
