```
::
;;
```

```
(RPAQQ TEDITDCLCOMS
       [
```

;;; This file is the collected record declarations and compile-time necessities for TEDIT.

```
        ;; FROM TEDIT
        (DECLARE%: EVAL@COMPILE DONTCOPY (CONSTANTS (\SCRATCHLEN 64)))
        ;; FROM TEDITSELECTION
        (RECORDS SELECTION)
        (DECLARE%: EVAL@COMPILE DONTCOPY (CONSTANTS (COPYSELSHADE 30583)
                                                    (COPYLOOKSSELSHADE 30583)
                                                    (EDITMOVESHADE -1)
                                                    (EDITGRAY 32800)))
        (VARS TEDITFILES)
        ;; FROM TEDITSCREEN
        (RECORDS THISLINE LINEDESCRIPTOR LINECACHE)
        (DECLARE%: EVAL@COMPILE DONTCOPY (CONSTANTS (LMInvisibleRun 401)
                                                    (LMLooksChange 400)))
        ;; FROM TEXTOFD
        (RECORDS EDITMARK)
        (RECORDS PIECE TEXTOBJ TEXTIMAGEDATA TEXTSTREAM)
        (OPTIMIZERS TEXTPROP)
        (COMS ;; Private data structures and constants FROM TEXTOFD
              (DECLARE%: EVAL@COMPILE DONTCOPY (CONSTANTS (\PCTBFreePieces 0)
                                                          (\PCTBLastPieceOffset 1)
                                                          (\FirstPieceOffset 2)
                                                          (\SecondPieceOffset 4)
                                                          (\EltsPerPiece 2))
              (MACROS \EDITELT \GETCH \GETCHB \EDITSETA \WORDSETA)
              (GLOBALVARS \TEXTIMAGEOPS \TEXTOFD \TEXTFDEV)))
```

;;; FROM TEDITPAGE

```
        (RECORDS PAGEFORMATTINGSTATE PAGEREGION)
        (DECLARE%: EVAL@COMPILE DONTCOPY (RECORDS TEDITPAPERSIZE)
              (FUNCTIONS \NEW-COLUMN-START \FIRST-COLUMN-START))
        ;; FROM TEDITFIND
        (DECLARE%: EVAL@COMPILE DONTCOPY (CONSTANTS (\AlphaNumericFlag 256)
                                                    (\AlphaFlag 512)
                                                    (\OneCharPattern 1024)
                                                    (\AnyStringPattern 1025)
                                                    (\OneAlphaPattern 1026)
                                                    (\AnyAlphaPattern 1027)
                                                    (\OneNonAlphaPattern 1028)
                                                    (\AnyNonAlphaPattern 1029)
                                                    (\LeftBracketPattern 1030)
                                                    (\RightBracketPattern 1031)
                                                    (\SpecialPattern 1024)))
        ;; FROM TEDITLOOKS
        (RECORDS CHARLOOKS FMTSPEC PENDINGTAB)
        (DECLARE%: EVAL@COMPILE DONTCOPY (MACROS \SMALLPIN \SMALLPOUT ONOFF))
        ;; FROM TEDITMENU
        (DECLARE%: EVAL@COMPILE DONTCOPY (RECORDS MBUTTON))
        (INITRECORDS MBUTTON)
        (DECLARE%: EVAL@COMPILE DONTCOPY (RECORDS NWAYBUTTON))
        (INITRECORDS NWAYBUTTON)
        (DECLARE%: EVAL@COMPILE DONTCOPY (RECORDS MARGINBAR))
        (INITRECORDS MARGINBAR)
        (DECLARE%: EVAL@COMPILE DONTCOPY (RECORDS TAB))
        (RECORDS MB.3STATE MB.BUTTON MB.INSERT MB.MARGINBAR MB.NWAY MB.TEXT MB.TOGGLE)
        (FUNCTIONS WITHOUT-UPDATES)
        ;; FROM TEDITHISTORY
```

```
        (RECORDS TEDITHISTORYEVENT)
        ;; FROM TEDITFILE
        (DECLARE%: EVAL@COMPILE DONTCOPY (CONSTANTS (\PieceDescriptorLOOKS 0)
                                                    (\PieceDescriptorOBJECT 1)
                                                    (\PieceDescriptorPARA 2)
                                                    (\PieceDescriptorPAGEFRAME 3)
                                                    (\PieceDescriptorCHARLOOKSLIST 4)
                                                    (\PieceDescriptorPARALOOKSLIST 5)
                                                    (\PieceDescriptorSAFEOBJECT 6)))
        ;; FROM TEDITCOMMAND
        (DECLARE%: EVAL@COMPILE DONTCOPY (MACROS \INSERT\TTY\BUFFER \TEDIT.MOUSESTATE \TEDIT.CHECK))
        (DECLARE%: EVAL@COMPILE DONTCOPY (RECORDS TEDITTERMCODE))
        (DECLARE%: EVAL@COMPILE DONTCOPY (CONSTANTS (NONE.TTC 0)
                                                    (CHARDELETE.TTC 1)
                                                    (WORDDELETE.TTC 2)
                                                    (DELETE.TTC 3)
                                                    (FUNCTIONCALL.TTC 4)
                                                    (REDO.TTC 5)
                                                    (UNDO.TTC 6)
                                                    (CMD.TTC 7)
                                                    (NEXT.TTC 8)
                                                    (EXPAND.TTC 9)
                                                    (PUNCT.TTC 20)
                                                    (TEXT.TTC 21)
                                                    (WHITESPACE.TTC 22)))
        (DECLARE%: EVAL@COMPILE DONTCOPY (CONSTANTS (MSPACE 153)
                                                    (NSPACE 152)
                                                    (THINSPACE 159)
                                                    (FIGSPACE 154)))
        ;; FROM TEDITWINDOW
        (DECLARE%: EVAL@COMPILE DONTCOPY (RECORDS TEDITCARET))
        (INITRECORDS TEDITCARET)
        ;; FROM PCTREE added by Nakamura
        (RECORDS PCTNODE)


;;; THE END

        (COMS  ;; Bits in the CHARTABLE that control line breaking, and what happens when a line is broken on this character

            (DECLARE%: EVAL@COMPILE DONTCOPY (CONSTANTS (NOTBEFORE.LB 1)
                                                        ; Must not break before this character (e.g. Japanese
                                                        ; right-paren)
                                            (NOTAFTER.LB 2)
                                                        ; Must not break after this character (e.g. Japanese open-quote)
                                            (BEFORE.LB 4)
                                                        ; OK to break before this character, provided it's OK to break
                                                        ; after the prior char (true of most non-white-space)
                                            (AFTER.LB 8)
                                                        ; OK to break after this char, if it's OK to break before the next
                                                        ; one (true of most white space)
                                            (DISAPPEAR-IF-NOT-SPLIT.LB 16)
                                                        ; This character shouldn't be rendered if it isn't the last char on
                                                        ; the line (non-breaking hyphen has this)
                                            (NEWCHAR-IF-SPLIT.LB 32)
                                                        ; Look this char up in *TEDIT-SPLITCHAR-HASH* if this IS the
                                                        ; last character on a line, and render it as the char we found.
                                            ])
```

;;;; This file is the collected record declarations and compile-time necessities for TEDIT.
;; FROM TEDIT

```
(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

(RPAQQ \SCRATCHLEN 64)

(CONSTANTS (\SCRATCHLEN 64))
)
)
```

;; FROM TEDITSELECTION

```
(DECLARE%: EVAL@COMPILE

(DATATYPE SELECTION (  ;; Description of a piece of selected text for TEdit.  Text has to be selected before it can be operated on by the user.
                    Y0                                              ; Y value of topmost line of selection
                    X0                                              ; X value of left edge of selection
```

```
                            DX                              ; Width of the selection, if it's on one line.
                            CH#                             ; CH# of the first selected character
                            XLIM                            ; X value of right edge of last selected character
                            CHLIM                           ; CH# of the last character in the selection
                            DCH                             ; # of characters selected (can be zero, for point selection.)
                            L1                              ; -> line descriptor for the line where the first selected character
                                                            ; is
                            LN                              ; -> line descriptor for the line which contains the end of the
                                                            ; selection
                            YLIM                            ; Y value of the bottom of the line that ends the selection
                            POINT                           ; Which end should the caret appear at?  (LEFT or RIGHT)
                            (SET FLAG)                      ; T if this selection is real;  NIL if not
                            (\TEXTOBJ FULLXPOINTER)         ; TEXTOBJ that describes the selected text
                            SELKIND                         ; What kind of selection?  CHAR or WORD or LINE or PARA
                            HOW                             ; SHADE used to highlight this selection
                            HOWHEIGHT                       ; Height of the highlight (1 usually, full line for delete selection...)
                            (HASCARET FLAG)                 ; T if there should be a caret for this selection
                            SELOBJ                          ; If this selection is inside an object, which object?
                            (ONFLG FLAG)                    ; T if the selection is highlighted on the screen, else NIL
                            SELOBJINFO                      ; A Place for the selected object to put info about selection inside
                                                            ; itself.

                            )
        SET _ NIL HOW _ BLACKSHADE HOWHEIGHT _ 1 HASCARET _ T Y0 _ 0 X0 _ 0 POINT _ 'LEFT L1 _ (LIST NIL)
        LN _ (LIST NIL))
)

(/DECLAREDATATYPE 'SELECTION
        '(POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER FLAG
                FULLXPOINTER POINTER POINTER POINTER FLAG POINTER FLAG POINTER)

        ;; ---field descriptor list elided by lister---

        '34)

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

(RPAQQ COPYSELSHADE 30583)

(RPAQQ COPYLOOKSSELSHADE 30583)

(RPAQQ EDITMOVESHADE −1)

(RPAQQ EDITGRAY 32800)

(CONSTANTS (COPYSELSHADE 30583)
        (COPYLOOKSSELSHADE 30583)
        (EDITMOVESHADE −1)
        (EDITGRAY 32800))
)
)

(RPAQQ TEDITFILES (PCTREE TEXTOFD TEDIT TEDITABBREV TEDITCOMMAND TEDITDCL TEDITFILE TEDITFIND TEDITFNKEYS
                        TEDITHCPY TEDITHISTORY TEDITLOOKS TEDITMENU TEDITPAGE TEDITSCREEN TEDITSELECTION
                        TEDITWINDOW))


;; FROM TEDITSCREEN

(DECLARE%: EVAL@COMPILE

(DATATYPE THISLINE (;; Cache for line-related character location info, for selection and line-display code to use.

                    (DESC FULLXPOINTER)                   ; Line descriptor for the line this describes now
                    LEN                                   ; Length of the line in characters
                    CHARS

                    ;; Array of character codes (or objects) on the line (charcode of 400 => dummy entry for looks change--go get next entry in
                    ;; LOOKS)

                    WIDTHS                                ; Array of each character's width in points
                    LOOKS                                 ; Array of any looks changes within the line.  LOOKS (0) =
                                                          ; starting character looks for the line
                    TLSPACEFACTOR                         ; The SPACEFACTOR to be used in printing this line
                    TLFIRSTSPACE                          ; The first space to which SPACEFACTOR is to apply.  This is
                                                          ; used so that spaces to the left of a TAB have their default
                                                          ; width.

                    )
        LEN _ 0 CHARS _ (ARRAY 512 'POINTER 0 0)
        WIDTHS _ (ARRAY 512 'POINTER 0 0)
        LOOKS _ (ARRAY 512 'POINTER NIL 0)
        TLFIRSTSPACE _ 0)

(DATATYPE LINEDESCRIPTOR (;; Description of a single line of formatted text, either on the display or for a printed page.

                        YBOT                              ; Y value for the bottom of the line (below the descent)
                        YBASE                             ; Yvalue for the base line the characters sit on
```

```
                         LEFTMARGIN                                    ; Left margin, in screen points
                         RIGHTMARGIN                                   ; Right margin, in screen points
                         LXLIM                                         ; X value of right edge of rightmost character on the line (may
                                                                       ; exceed right margin, if char is a space.)
                         SPACELEFT                                     ; Space left on the line, ignoring trailing blanks & CRs.
                         LHEIGHT                                       ; Total height of hte line, Ascent+Descent.
                         ASCENT                                        ; Ascent of the line above YBASE
                         DESCENT                                       ; How far line descends below YBASE
                         LTRUEDESCENT                                  ; The TRUE DESCENT for this line, unadjusted for line leading.
                         LTRUEASCENT                                   ; The TRUE ASCENT for this line, unadjusted for pre-paragraph
                                                                       ; leading.
                         CHAR1                                         ; CH# of the first character on the line.
                         CHARLIM                                       ; CH# of the last character on the line
                         CHARTOP                                       ; CH# of the character which forced the line break (may exceed
                                                                       ; CHARLIM)
                         NEXTLINE                                      ; Next line chain pointer
                         (PREVLINE FULLXPOINTER)                       ; Previous line chain pointer
                         LMARK                                         ; One of SOLID, GREY, NIL.  Tells what kind of special-line
                                                                       ; marker should be put in the left margin for this paragraph.  (For
                                                                       ; hardcopy, can also be an indicator for special processing?)
                         LTEXTOBJ                                      ; A cached TEXTOBJ that this line took its text from.  Used in
                                                                       ; hardcopy to disambiguate when chno's should be updated...
                         CACHE                                         ; A cached THISLINE, for keeping hardcopy info around while we
                                                                       ; crunch with the line descriptors to make things fit.
                         LDOBJ                                         ; The object which lies behind this line of text, for updating, etc.
                         LFMTSPEC                                      ; The format spec for this line's paragraph (eventually)
                         (DIRTY FLAG)                                  ; T if this line has changed since it was last formatted.
                         (CR\END FLAG)                                 ; T if this line ends with a CR.
                         (DELETED FLAG)                                ; T if this line has been completely deleted since it was last
                                                                       ; formatted or displayed.  (Used by deletion routines to detect
                                                                       ; garbage lines)
                         (LHASPROT FLAG)                               ; This line contains protected text.
                         (LHASTABS FLAG)                               ; If this line has a tab in it, this is the line-relative ch# of the final
                                                                       ; tab.  This is to let us punt properly with tabs in a line.
                         (1STLN FLAG)                                  ; This line is the first line in a paragraph
                         (LSTLN FLAG)                                  ; This is the last line in a paragraph

                         )
        CHARLIM _ 1000000 NEXTLINE _ NIL PREVLINE _ NIL DIRTY _ NIL YBOT _ 0 YBASE _ 0 LEFTMARGIN _ 0 DELETED _
        NIL)

(DATATYPE LINECACHE (;; Image cache for display lines.

                         LCBITMAP                                      ; The bitmap that will be used by this instance of the cache
                         (LCNEXTCACHE FULLXPOINTER)                    ; The next cache in the chain, for screen updates.

                         ))
)

(/DECLAREDATATYPE 'THISLINE '(FULLXPOINTER POINTER POINTER POINTER POINTER POINTER POINTER)
        ;; ---field descriptor list elided by lister---
        '14)

(/DECLAREDATATYPE 'LINEDESCRIPTOR
        '(POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER
                POINTER POINTER FULLXPOINTER POINTER POINTER POINTER POINTER POINTER FLAG FLAG FLAG FLAG FLAG
                FLAG FLAG)
        ;; ---field descriptor list elided by lister---
        '42)

(/DECLAREDATATYPE 'LINECACHE '(POINTER FULLXPOINTER)
        ;; ---field descriptor list elided by lister---
        '4)

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

(RPAQQ LMInvisibleRun 401)

(RPAQQ LMLooksChange 400)

(CONSTANTS (LMInvisibleRun 401)
        (LMLooksChange 400))
)
)


;; FROM TEXTOFD

(DECLARE%: EVAL@COMPILE

(RECORD EDITMARK (;; Used for fast access to a given place in the text--a "Marker".  It consists of the piece, and the offset within the piece, and the
                  ;; piece number within the piece table.  That's everything that's needed to set a text stream up quickly to start reading from a
                  ;; given place.
```

```
                PC PCOFF . PCNO))
)

(DECLARE%: EVAL@COMPILE

(DATATYPE PIECE (                                        ; The piece describes either a string or part of a file. , or a
                                                         ; generalized OBJECT.
                PSTR                                     ; The string where this piece's text resides, or NIL
                PFILE                                    ; The file which contains this piece's text, or NIL
                (PFPOS FIXP)                             ; The FILEPTR of the start of the piece in the file
                (PLEN FIXP)                              ; Length of the piece, in characters.
                (NEXTPIECE FULLXPOINTER)                 ; -> Next piece in this textobj.
                (PREVPIECE FULLXPOINTER)                 ; -> Prior piece in this text object.
                PLOOKS                                   ; Formatting info and formatting events in this piece
                POBJ                                     ; The OBJECT this piece describes
                (PPARALAST FLAG)                         ; This piece contains a paragraph break
                PPARALOOKS                               ; Paragraph looks for this piece
                (PNEW FLAG)                              ; This text is new here;  used by the tentative edit system, and
                                                         ; anyone else interested.
                (PFATP FLAG)                             ; T if the characters in this piece are FAT -- i.e., are 16 bits each.
                (PTREENODE XPOINTER)                     ; Points to the PCTB tree-node that contains this piece.

                )
        PSTR _ NIL PFILE _ NIL PFPOS _ 0 PLEN _ 0 PPARALOOKS _ TEDIT.DEFAULT.FMTSPEC PTREENODE _ NIL)

(DATATYPE TEXTOBJ (;; This is where TEdit stores its state information, and internal data about the text being edited.

                PCTB                                     ; The piece table
                TEXTLEN                                  ; # of chars in the text
                \INSERTPC                                ; Piece to hold type-in
                \INSERTPCNO                              ; Piece # of the input piece
                \INSERTNEXTCH                            ; CH# of next char which is typed into that piece.
                \INSERTLEFT                              ; Space left in the type-in piece
                \INSERTLEN                               ; # of characters already in the piece.
                \INSERTSTRING                            ; The string which the piece describes.
                \INSERTFIRSTCH                           ; CH# of first char in the piece.
                (\INSERTPCVALID FLAG)                    ; T if it's OK to use the cached piece.  Set to NIL by people who
                                                         ; require that the next insertion/deletion use a different piece.
                \WINDOW                                  ; The window<s> where this textobj is displayed
                MOUSEREGION                              ; Section of the window the mouse is in.
                LINES                                    ; -> to top of chain of line descriptors for displayed text
                DS                                       ; Display stream where this textobj is displayed
                SEL                                      ; The current selection within the text
                SCRATCHSEL                               ; Scratch space for the selection code
                MOVESEL                                  ; Source for the next MOVE of text
                SHIFTEDSEL                               ; Source for the next COPY
                DELETESEL                                ; Text to be deleted imminently
                WRIGHT                                   ; Right edge of the window (or subregion) where this is displayed
                WTOP                                     ; Top of the window/region
                WBOTTOM                                  ; Bottom of the window/region
                WLEFT                                    ; Left edge of the window/region
                TXTFILE                                  ; The original text file we're editing
                (\XDIRTY FLAG)                           ; T => changed since last saved.
                (STREAMHINT FULLXPOINTER)                ; -> the TEXTOFD stream which gives access to this textobj
                EDITFINISHEDFLG                          ; T => The guy has asked the editor to go way
                CARET                                    ; Describes the flashing caret for the editing window
                CARETLOOKS                               ; Font to be used for inserted text.
                WINDOWTITLE                              ; Original title for this window, of there was one.
                THISLINE                                 ; Cache of line-related info, to speed up selection &c
                (MENUFLG FLAG)                           ; T if this TEXTOBJ is a tedit-style menu
                FMTSPEC                                  ; Default Formatting Spec to be used when formatting
                                                         ; paragraphs
                (FORMATTEDP FLAG)                        ; Flag for paragraph formatting.  T if this document is to contain
                                                         ; paragraph formatting information.
                (TXTREADONLY FLAG)                       ; This is only available for shift selection.
                (TXTEDITING FLAG)                        ; T => This document is in a window and there is an edit process
                                                         ; behind it.  For example, it only makes sense to have a caret
                                                         ; show up if you are editing.
                (TXTNONSCHARS FLAG)                      ; T => If TEdit rns into a 255, it won't attempt to convert to NS
                                                         ; characters.  Used for REALLY plain-text manipulation.
                TXTTERMSA                                ; Special instructions for displaying characters on the screen
                EDITOPACTIVE                             ; T if there is an editing operation in progress.  Used to interlock
                                                         ; the TEdit menu
                DEFAULTCHARLOOKS                         ; The default character looks -- if any -- to be applied to
                                                         ; characters coming into the file from outside.
                TXTRTBL                                  ; The READTABLE to be used by the command loop for
                                                         ; command dispatch
                TXTWTBL                                  ; The READTABLE to be used to decide on word breaks
                EDITPROPS                                ; The PROPS that were passed into this edit session
                (BLUEPENDINGDELETE FLAG)                 ; T if the next insertion in this document is to be preceded by a
                                                         ; deletion of the then-current selection
                TXTHISTORY                               ; The history list for this edit session.
                (SELWINDOW FULLXPOINTER)                 ; The window in which the last 'real' selection got made for this
                                                         ; edit;  used to control caret placement
                PROMPTWINDOW                             ; A window to be used for unscheduled interactions;  normally a
                                                         ; small window above the edit window
```

```
                DISPLAYCACHE                              ; The bitmap to be used when building the image of a line for
                                                          ; display
                DISPLAYCACHEDS                            ; The DISPLAYSTREAM that is used to build line images
                DISPLAYHCPYDS                             ; The DISPLAYSTREAM used to build line images of lines that
                                                          ; are displayed in 'hardcopy' simulation mode
                TXTPAGEFRAMES                             ; A tree of page frames, specifying how the document is to be
                                                          ; laid out.
                TXTCHARLOOKSLIST                          ; List of all the CHARLOOKSs in the document, so they can be
                                                          ; kept unique
                TXTPARALOOKSLIST                          ; List of all the FMTSPECs in the document, so they can be kept
                                                          ; unique
                (TXTNEEDSUPDATE FLAG)                     ; T => Screen invalid, need to run updater
                (TXTDON'TUPDATE FLAG)                     ; T if we're holding off on screen updates until later.  Used, e.g.,
                                                          ; by the menu-SHOW code so that you don't get piecemeal
                                                          ; updates, but only one at the end of the SHOW.
                TXTRAWINCLUDESTREAM                       ; NODIRCORE stream used to cache RAW includes (and maybe
                                                          ; later, all includes?)
                DOCPROPS                                  ; Document properties that are stored with the document (not
                                                          ; used yet)
                TXTSTYLESHEET                             ; Style sheet local to this document.  Not currently saved as part
                                                          ; of the file.

               )
        [ACCESSFNS TEXTOBJ ((\DIRTY (ffetch (TEXTOBJ \XDIRTY) of DATUM)
                              (PROGN (IF (NEQ (FETCH (TEXTOBJ \XDIRTY) OF DATUM)
                                              NEWVALUE)
                                  THEN                        ; update the title to reflect the change
                                              (\TEDIT.WINDOW.TITLE DATUM (\TEDIT.ORIGINAL.WINDOW.TITLE
                                                                                 (ffetch (TEXTOBJ TXTFILE)
                                                                                    of DATUM)
                                                                          NEWVALUE)))
                                     (freplace \XDIRTY OF DATUM WITH NEWVALUE]
        SEL _ (create SELECTION)
        SCRATCHSEL _ (create SELECTION)
        MOVESEL _ (create SELECTION
                        HOWHEIGHT _ 32767
                        HASCARET _ NIL)
        SHIFTEDSEL _ (create SELECTION
                            HASCARET _ NIL)
        DELETESEL _ (create SELECTION
                           HOWHEIGHT _ 32767
                           HASCARET _ NIL)
        \INSERTNEXTCH _ -1 \INSERTPC _ NIL \INSERTLEFT _ 0 \INSERTLEN _ 0 \INSERTSTRING _ NIL \INSERTFIRSTCH _
        1000000 TEXTLEN _ 0 WRIGHT _ 0 WTOP _ 0 WLEFT _ 0 WBOTTOM _ 0 TXTFILE _ NIL \XDIRTY _ NIL MOUSEREGION _
        'TEXT THISLINE _ (create THISLINE)
        MENUFLG _ NIL FMTSPEC _ TEDIT.DEFAULT.FMTSPEC FORMATTEDP _ NIL)

(DATATYPE TEXTIMAGEDATA (;; Fills the IMAGEDATA field of text streams.

                        TICURPARALOOKS                    ; The current paragraph looks
                        TICURIMAGESTREAM                  ; The image stream for this hardcopy transduction
                        TILOOKSUPDATEFN                   ; The function to call to update looks for this stream
                        TIPCOFFSET                        ; The offset into the current piece, as of the last page cross.

                        ))

[ACCESSFNS TEXTSTREAM (;; Overlay for the STREAM record to allow mnemonic access to stream fields for Text streams.

                      (REALFILE (fetch F1 of DATUM)
                          (REPLACE F1 OF DATUM WITH NEWVALUE))
                                                          ; The real, underlying file behind the current piece
                      (CHARSLEFT (fetch F2 of DATUM)
                          (REPLACE F2 OF DATUM WITH NEWVALUE))
                      ;; The # of characters that will be left in the current piece the next time its file crosses a page boundary

                      (TEXTOBJ (fetch F3 of DATUM)
                          (REPLACE F3 OF DATUM WITH NEWVALUE))
                                                          ; The TEXTOBJ that is editing this text
                      (PIECE (fetch F5 of DATUM)
                          (REPLACE F5 OF DATUM WITH NEWVALUE))
                                                          ; The PIECE we're currently fetching chars from/putting chars
                                                          ; into
                      (PCNO (fetch FW8 of DATUM)
                          (REPLACE FW8 OF DATUM WITH NEWVALUE))
                                                          ; The position of that piece in the piece table
                      (PCSTARTPG (fetch FW6 of DATUM)
                          (REPLACE FW6 OF DATUM WITH NEWVALUE))
                                                          ; The underlying file page# that this piece starts on
                      (PCSTARTCH (fetch FW7 of DATUM)
                          (REPLACE FW7 OF DATUM WITH NEWVALUE))
                                                          ; The char within page of the underlying file that this piece starts
                                                          ; on -- for backbin & co
                      (PCOFFSET (fetch TIPCOFFSET of (fetch IMAGEDATA of DATUM))
                          (REPLACE TIPCOFFSET OF (fetch IMAGEDATA of DATUM) with NEWVALUE))
                                                          ; The offset into the current piece, as of the last page cross.
                      (CURRENTLOOKS (fetch F10 of DATUM)
                          (replace F10 of DATUM with NEWVALUE))
```

```
                                                               ; The CHARLOOKS that are currently applicable to characters
                                                               ; being taken from the stream.
                    (CURRENTPARALOOKS (fetch TICURPARALOOKS of (fetch IMAGEDATA of DATUM))
                           (REPLACE TICURPARALOOKS OF (fetch IMAGEDATA of DATUM) with NEWVALUE))
                                                               ; The FMTSPEC that is currently applicable to characters being
                                                               ; taken from the stream.
                    (CURRENTIMAGESTREAM (fetch TICURIMAGESTREAM of (fetch IMAGEDATA of DATUM))
                           (REPLACE TICURIMAGESTREAM OF (fetch IMAGEDATA of DATUM) with NEWVALUE)
                                                               ; The image stream that this text is being put onto;  used for
                                                               ; scaling decisions

                        )
                    (LOOKSUPDATEFN (fetch TILOOKSUPDATEFN of (fetch IMAGEDATA of DATUM))
                           (REPLACE TILOOKSUPDATEFN OF (fetch IMAGEDATA of DATUM) with NEWVALUE))
                                                               ; Function to be called each time character looks change.
                    (FATSTREAMP (fetch F4 of DATUM)
                           (REPLACE F4 OF DATUM WITH NEWVALUE))
                                                               ; T if the current piece is 16 bit characters.

                )
            (CREATE (create STREAM using \TEXTOFD IMAGEDATA _ (create TEXTIMAGEDATA]
)

(/DECLAREDATATYPE 'PIECE '(POINTER POINTER FIXP FIXP FULLXPOINTER FULLXPOINTER POINTER POINTER FLAG POINTER FLAG
                          FLAG XPOINTER)
        ;; ---field descriptor list elided by lister---
        '20)

(/DECLAREDATATYPE 'TEXTOBJ
        '(POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER FLAG POINTER POINTER POINTER
                POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER FLAG
                FULLXPOINTER POINTER POINTER POINTER POINTER POINTER FLAG POINTER FLAG FLAG FLAG FLAG POINTER
                POINTER POINTER POINTER POINTER POINTER FLAG POINTER FULLXPOINTER POINTER POINTER POINTER POINTER
                POINTER POINTER POINTER FLAG FLAG POINTER POINTER POINTER)
        ;; ---field descriptor list elided by lister---
        '96)

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


(DEFOPTIMIZER TEXTPROP (TEXTOBJ PROP &OPTIONAL (VAL NIL WRITING))
                            ;; compiles calls to TEXTPROP

                            [COND
                                ((NOT (LISTP PROP))              ; property is not quoted.
                                 'IGNOREMACRO)
                                ((NOT (EQ (CAR PROP)
                                          'QUOTE))              ; property is not quoted.
                                 'IGNOREMACRO)
                                [(NOT WRITING)                  ; fetching a TEXTPROP property.
                                 (SELECTQ (CADR PROP)
                                     ((READONLY READ-ONLY)
                                      '(fetch (TEXTOBJ TXTREADONLY) of (TEXTOBJ ,TEXTOBJ)))
                                     ((BEING-EDITED ACTIVE)
                                      '(fetch (TEXTOBJ TXTEDITING) of (TEXTOBJ ,TEXTOBJ)))
                                     ((NO-NS-CHARS NONSCHARS NO-NSCHARS)
                                      '(fetch (TEXTOBJ TXTNONSCHARS) of (TEXTOBJ ,TEXTOBJ)))
                                     '(LISTGET (fetch (TEXTOBJ EDITPROPS) of (TEXTOBJ ,TEXTOBJ))
                                            ,PROP]
                                (T                              ; storing a window property
                                   (SELECTQ (CADR PROP)
                                       ((READONLY READ-ONLY)
                                        '(REPLACE (TEXTOBJ TXTREADONLY) OF (TEXTOBJ ,TEXTOBJ)
                                            WITH ,VAL))
                                       ((BEING-EDITED ACTIVE)
                                        '(REPLACE (TEXTOBJ TXTEDITING) OF (TEXTOBJ ,TEXTOBJ)
                                            WITH ,VAL))
                                       ((NO-NS-CHARS NONSCHARS NO-NSCHARS)
                                        '(REPLACE (TEXTOBJ TXTNONSCHARS) OF (TEXTOBJ ,TEXTOBJ)
                                            WITH ,VAL))
                                       '(LET* (($$TEXTOBJ$$ (TEXTOBJ ,TEXTOBJ))
                                               ($$PROPLST$$ (FETCH EDITPROPS OF $$TEXTOBJ$$)))
                                              (COND
                                                 ($$PROPLST$$ (LISTPUT $$PROPLST$$ ,PROP ,VAL))
                                                 (T (REPLACE EDITPROPS OF $$TEXTOBJ$$ WITH (LIST ,PROP
                                                                                                ,VAL])
```

;; Private data structures and constants FROM TEXTOFD

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

```
(RPAQQ \PCTBFreePieces 0)

(RPAQQ \PCTBLastPieceOffset 1)

(RPAQQ \FirstPieceOffset 2)

(RPAQQ \SecondPieceOffset 4)

(RPAQQ \EltsPerPiece 2)

(CONSTANTS (\PCTBFreePieces 0)
       (\PCTBLastPieceOffset 1)
       (\FirstPieceOffset 2)
       (\SecondPieceOffset 4)
       (\EltsPerPiece 2))
)

(DECLARE%: EVAL@COMPILE

(PUTPROPS \EDITELT DMACRO (OPENLAMBDA (ARR NO)
```

            (* This is equivalent to ELT, but bypasses the checking, since we "know" that ARR is an array.
            Hence, much faster.)

```
                              (GETBASEPTR (\ADDBASE2 (fetch (ARRAYP BASE) of ARR)
                                                    NO)
                                   0)))
(PUTPROPS \GETCH MACRO ((TEXTOBJ)                                      (* jds "23-FEB-82 08:56")
```
                                                                       (* Get the next available character from the text being edited.)
```
                   (\BIN (fetch STREAMHINT of TEXTOBJ))))
(PUTPROPS \GETCHB MACRO ((TEXTOBJ)                                     (* Get the next prior character in the text being edited.)
                   (\BACKBIN (fetch STREAMHINT of TEXTOBJ))))
(PUTPROPS \EDITSETA DMACRO (OPENLAMBDA (ARR N VAL)
```

            (* Equivalent to SETA (for pointer-type arrays)%, but bypasses the bounds and type checking.
            Hence MUCH faster.)

```
                              (\RPLPTR (\ADDBASE2 (fetch (ARRAYP BASE) of ARR)
                                                  N)
                                   0 VAL)))
(PUTPROPS \WORDSETA DMACRO (OPENLAMBDA (A J V)
                              [CHECK (AND (ARRAYP A)
                                          (ZEROP (fetch (ARRAYP ORIG) of A))
                                          (EQ \ST.POS16 (fetch (ARRAYP TYP) of A]
                              (CHECK (IGREATERP (fetch (ARRAYP LENGTH) of A)
                                                J))
                              (\PUTBASE (fetch (ARRAYP BASE) of A)
                                        (IPLUS (fetch (ARRAYP OFFST) of A)
                                               J)
                                        V)))
)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS \TEXTIMAGEOPS \TEXTOFD \TEXTFDEV)
)
)
```

;;; FROM TEDITPAGE

```
(DECLARE%: EVAL@COMPILE

(RECORD PAGEFORMATTINGSTATE (;; Contains the state for a TEdit page-formatting job.

                      PAGE#                               ; The current page number. Counted from 1
                      FIRSTPAGE

                      ;; T if the current page is the 'first page' . Is set initially, and can be set again by the user at will. Gets reset after
                      ;; each page image is printed.

                      MINPAGE#                            ; The page # of the first page to be printed, or NIL
                      MAXPAGE#                            ; The page # of the last page to be printed, or NIL
                      STATE                               ; One of FORMATTING or SEARCHING.
                      REQUIREDREGIONTYPE                  ; If STATE is SEARCHING, the kind of box we're looking for. If
                                                          ; STATE is :SEARCHING-FOR-EQUIVALENT-PAGE, this is the
                                                          ; page count for the matching page.
                      MAINSTREAM                          ; The principal textobj/stream source
                      CHNO                                ; Our position in that stream
                      PRESSREGION                         ; The press code's REGION info.
                      PAGEHEADINGS                        ; The list of current values to be printed, indexed by heading type
                      PAGE#GENERATOR                      ; List of page numbers; later, maybe, a function to generate
                                                          ; page numbers. Used to fill in PAGE#TEXT, below
```

```
                              PAGE#TEXT                          ; If special page numbers are in use, this is the place to take
                                                                 ; them from.  PAGE# is still used for recto/verso decisions &c
                              PAGEISRECTO                        ; T if this is a recto page, NIL if it's a VERSO page.
                              PAGEFOOTNOTELINES                  ; A list of extant footnote lines that should appear at the next
                                                                 ; opportunity
                              PAGEFLOATINGTOPLINES               ; A list of lines that should float to the top of the next available
                                                                 ; place
                              PAGECOUNT                          ; The number of pages we've formatted so far.
                              PAGELINECACHE                      ; A cache for pre-created LINEDESCRIPTOR/THISLINE sets, to
                                                                 ; avoid the overhead of re-allocating them all the time
                              NEWPAGELAYOUT                      ; If we switch page layouts in mid-document, this is where the
                                                                 ; new layout gets cached until we get started again.

                              )
        PAGECOUNT _ 0)

(DATATYPE PAGEREGION (;; Describe a part of a page for page formatting.  Can be made into compound descriptions.

                              REGIONFILLMETHOD                   ; What kind of a region this is -- TEXT, FOLIO, PAGEHEADING,
                                                                 ; etc.
                              REGIONSPEC                         ; The page-relative region this occupies
                              REGIONLOCALINFO                    ; A PLIST for local information
                              (REGIONPARENT FULLXPOINTER)        ; The parent node for this box, for sub-boxes
                              REGIONSUBBOXES                     ; The sub-regions of this region
                              REGIONTYPE                         ; A user-settable region type

                              ))
)

(/DECLAREDATATYPE 'PAGEREGION '(POINTER POINTER POINTER FULLXPOINTER POINTER POINTER)
        ;; ---field descriptor list elided by lister---

        '12)

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

(RECORD TEDITPAPERSIZE (;; Describe the size of a sheet of paper (in points), given a paper size-name.

                              TPSNAME                            ; The name, as a litatom
                              TPSWIDTH                           ; Paper width, in points
                              TPSHEIGHT                          ; Paper Height, in points
                              TPSLANDSCAPE?                      ; T if we have to rotate things to print them on this paper.

                              ))
)


(DEFMACRO \NEW-COLUMN-START (LINE FMTSPEC)
    '(AND (FFETCH (LINEDESCRIPTOR 1STLN) OF ,LINE)
          (EQ (FFETCH (FMTSPEC FMTCOLUMN) OF ,FMTSPEC)
              'NEXT)))


(DEFMACRO \FIRST-COLUMN-START (LINE FMTSPEC)
    '(AND (FFETCH (LINEDESCRIPTOR 1STLN) OF ,LINE)
          (EQ (FFETCH (FMTSPEC FMTCOLUMN) OF ,FMTSPEC)
              'FIRST)))
)

;; FROM TEDITFIND

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

(RPAQQ \AlphaNumericFlag 256)

(RPAQQ \AlphaFlag 512)

(RPAQQ \OneCharPattern 1024)

(RPAQQ \AnyStringPattern 1025)

(RPAQQ \OneAlphaPattern 1026)

(RPAQQ \AnyAlphaPattern 1027)

(RPAQQ \OneNonAlphaPattern 1028)

(RPAQQ \AnyNonAlphaPattern 1029)

(RPAQQ \LeftBracketPattern 1030)

(RPAQQ \RightBracketPattern 1031)
```

(RPAQQ **\SpecialPattern** 1024)

```
(CONSTANTS (\AlphaNumericFlag 256)
        (\AlphaFlag 512)
        (\OneCharPattern 1024)
        (\AnyStringPattern 1025)
        (\OneAlphaPattern 1026)
        (\AnyAlphaPattern 1027)
        (\OneNonAlphaPattern 1028)
        (\AnyNonAlphaPattern 1029)
        (\LeftBracketPattern 1030)
        (\RightBracketPattern 1031)
        (\SpecialPattern 1024))
)
)
```

;; FROM TEDITLOOKS

(DECLARE%: EVAL@COMPILE

(DATATYPE CHARLOOKS (;; Describes the appearance ("Looks") of characters in a TEdit document.

```
                CLFONT                                    ; The font descriptor for these characters
                CLNAME
```
                ;; Name of the font (e.g., HELVETICA) THIS FIELD IS A HINT, OR FOR USE IN CHARLOOKS-BUILDING CODE. USE
                ;; FONTPROP TO GET THE RIGHT VALUE FROM CLFONT.

```
                CLSIZE                                    ; Font size, in points
                (CLITAL FLAG)                             ; T if the characters are italic, else NIL
                (CLBOLD FLAG)                             ; T if the characters are bold, else NIL
                (CLULINE FLAG)                            ; T if the characters are to be underscored, else NIL
                (CLOLINE FLAG)                            ; T if the characters are to be overscored, else NIL
                (CLSTRIKE FLAG)                           ; T if the characters are to be struck thru, else nil.
                CLOFFSET                                  ; A superscripting offset in points (?) else NIL (SUBSCRIPTING
                                                          ; IF NEGATIVE.)
                (CLSMALLCAP FLAG)                         ; T if small caps, else NIL
                (CLINVERTED FLAG)                         ; T if the characters are to be shown white-on-black
                (CLPROTECTED FLAG)                        ; T if chars can't be selected, else NIL
                (CLINVISIBLE FLAG)                        ; T if TEDIT is to ignore these chars;  else NIL
                (CLSELHERE FLAG)
```
                ;; T if TEDIT can put selection after this char (for menu blanks) else NIL; anything typed after this char will NOT BE
                ;; PROTECTED.

```
                (CLCANCOPY FLAG)
```
                ;; T if this text can be selected for copying, even tho protected (it will become unprotected after the copy; for Dribble/TTY
                ;; interface)

```
                CLSTYLE                                   ; The style to be used in marking these characters;  overridden
                                                          ; by the other fields
                CLUSERINFO                                ; Any information that an outsider wants to include
                CLLEADER                                  ; For creating dotted and other kinds of leader
                CLRULES
```
                ;; For arbitrarily-places horizontal rules. List of pairs, of (widthinpts . offsetfrombaselineinpts). Should be taken account of
                ;; in ascent/descent calcs.

```
                (CLMARK FLAG)
```
                ;; Used for a mark-&-sweep of looks at PUT time -- T means this set of looks really IS in use in the document

```
                )
        CLOFFSET _ 0)
```

(DATATYPE FMTSPEC (;; Describe the paragraph formatting for a paragraph in a TEdit document.

```
                1STLEFTMAR                                ; Left margin of the first line of the paragraph
                LEFTMAR                                   ; Left margin of the rest of the lines in the paragraph
                RIGHTMAR                                  ; Right margin for the paragraph
                LEADBEFORE                                ; Leading above the paragraph's first line, in points
                LEADAFTER                                 ; Leading below the paragraph's bottom line, in points.  NOT
                                                          ; IMPLEMENTED.
                LINELEAD                                  ; Leading between lines, in points.  Actually, this space is added
                                                          ; BELOW each line in the para.
                FMTBASETOBASE                             ; The baseline-to-baseline spacing between lines in this
                                                          ; paragraph.  THIS OVERRIDES THE LINE LEADING
                TABSPEC                                   ; The list of tabs for this paragraph, including CAR for a default
                                                          ; tab width
                QUAD                                      ; How the para is formatted: one of LEFT, RIGHT, CENTERED,
                                                          ; JUSTIFIED
                FMTSTYLE                                  ; The STYLE that controls this paragraph's appearance
                FMTCHARSTYLES                             ; The characterstyles that control the appearance of characters
                                                          ; in this para (maybe?  may be part of the fmtstyle.)
                FMTUSERINFO                               ; Space for a PLIST of user info
                FMTSPECIALX                               ; A special horizontal location on the printed page for this para.
                FMTSPECIALY                               ; A special vertical location on the page for this para
                (FMTHEADINGKEEP FLAG)                     ; This para should be kept with the top line or so of the next
                                                          ; para..
                FMTPARATYPE                               ; What kind of para this is: TEXT, PAGEHEADING, whatever
```

```
                        FMTPARASUBTYPE                               ; Sub type of the type, e.g., what KIND of page heading this is.
                        FMTNEWPAGEBEFORE                             ; Start a new box (if T) or back up the page formatting tree to
                                                                    ; make a new box of the type named in the value -- by going the
                                                                    ; least distance back up the tree, then back down until you find
                                                                    ; that kind of box.
                        FMTNEWPAGEAFTER                             ; Similarly
                        FMTKEEP                                     ; For information about how this paragraph is to be kept with
                                                                    ; other paragraphs.
                        FMTCOLUMN                                   ; For setting up side-by-side paragraphs easily ala BravoX
                        FMTVERTRULES                               ; For Keeping track of vertical rules in force
                        (FMTMARK FLAG)                              ; Used to keep track of which PARALOOKSs are really being
                                                                    ; used -- a mark & collect is done just before a PUT, so that only
                                                                    ; 'real' PARALOOKSs make it into the file
                                                                    ; Used for a mark&sweep of para looks at PUT time -- T means
                                                                    ; this looks really IS in use in the document, so it makes sense to
                                                                    ; save it on the file.
                        (FMTHARDCOPY FLAG)                          ; T if this paragraph is to be displayed in hardcopy-format.
                        FMTREVISED                                 ; T (or perhaps a revision level or revision-mark spec??) if this
                                                                    ; paragraph is to be marked as changed on output.

                        )
            TABSPEC _ (CONS NIL NIL))

(DATATYPE PENDINGTAB (;; The data structure for a tab, within the line formatter, that we haven't finished dealing with yet, e.g. a centered tab where
                     ;; you need to wait for AFTER the centered text to do the formatting.

                     PTNEWTX

                     ;; An updated TX, being passed back to the line formatter.  This results from the resolution of an old RIGHT, CENTERED,
                     ;; or DECIMAL tab, which changed the width of a prior tab.

                     PTOLDTAB                                       ; The pending tab
                     PTTYPE                                         ; Its tab type
                     PTTABX                                         ; Its nominal X position
                     (PTWBASE FULLXPOINTER)                         ; The WBASE for its width, for updating when we've figured out
                                                                    ; how wide the tab really is
                     PTOLDTX                                        ; The TX as of when the tab was encountered.

                     ))
)

(/DECLAREDATATYPE 'CHARLOOKS
        '(POINTER POINTER POINTER FLAG FLAG FLAG FLAG FLAG POINTER FLAG FLAG FLAG FLAG FLAG FLAG POINTER POINTER
                POINTER POINTER FLAG)
        ;; ---field descriptor list elided by lister---
        '16)

(/DECLAREDATATYPE 'FMTSPEC
        '(POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER
                POINTER FLAG POINTER POINTER POINTER POINTER POINTER POINTER POINTER FLAG FLAG POINTER)
        ;; ---field descriptor list elided by lister---
        '44)

(/DECLAREDATATYPE 'PENDINGTAB '(POINTER POINTER POINTER POINTER FULLXPOINTER POINTER)
        ;; ---field descriptor list elided by lister---
        '12)

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

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

(PUTPROPS \SMALLPOUT MACRO (OPENLAMBDA (STREAM W)
                                (\BOUT STREAM (LOGAND 255 (LRSH W 8)))
                                (\BOUT STREAM (LOGAND W 255))))

(PUTPROPS ONOFF MACRO [OPENLAMBDA (VAL)
                            (COND
                                (VAL 'ON)
                                (T 'OFF)]
)
)

;; FROM TEDITMENU

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

[RECORD MBUTTON NIL (TYPE? (AND (IMAGEOBJP DATUM)
```

```
                                         (OR (EQ (IMAGEOBJPROP DATUM 'DISPLAYFN)
                                                 'MB.DISPLAY)
                                             (EQ (IMAGEOBJPROP DATUM 'DISPLAYFN)
                                                 'MB.THREESTATE.DISPLAY)
                                             (EQ (IMAGEOBJPROP DATUM 'DISPLAYFN)
                                                 '\TEXTMENU.TOGGLE.DISPLAY]
)
)

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

[RECORD NWAYBUTTON NIL (TYPE? (AND (IMAGEOBJP DATUM)
                                  (EQ (IMAGEOBJPROP DATUM 'DISPLAYFN)
                                      'MB.NB.DISPLAYFN]
)
)

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

[RECORD MARGINBAR (MARL1 MARLN MARR MARTABS MARUNIT MARTABTYPE)
        (TYPE? (AND (IMAGEOBJP DATUM)
                    (EQ (IMAGEOBJPROP DATUM 'DISPLAYFN)
                        'MB.MARGINBAR.DISPLAYFN]
)
)

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

(RECORD TAB (TABX . TABKIND))
)
)

(DECLARE%: EVAL@COMPILE

(TYPERECORD MB.3STATE  (;; Describes a 3-state menu button.

                       MBLABEL                              ; Label for the button on the screen
                       MBFONT                               ; Font the label text should appear in
                       MBCHANGESTATEFN                      ; Function to call when the button's state changes
                       MBINITSTATE                          ; Button's initial state.

                       )
        MBFONT _ (FONTCREATE 'HELVETICA 8 'BOLD))

(TYPERECORD MB.BUTTON (MBLABEL MBBUTTONEVENTFN MBFONT)
        MBBUTTONEVENTFN _ 'MB.DEFAULTBUTTON.FN MBFONT _ (FONTCREATE 'HELVETICA 8 'BOLD))

(TYPERECORD MB.INSERT (MBINITENTRY))

(TYPERECORD MB.MARGINBAR (ignoredfield))

(TYPERECORD MB.NWAY (MBBUTTONS MBFONT MBCHANGESTATEFN MBINITSTATE MBMAXITEMSPERLINE)
        MBFONT _ (FONTCREATE 'HELVETICA 8 'BOLD))

(TYPERECORD MB.TEXT (MBSTRING MBFONT))

(TYPERECORD MB.TOGGLE (MBTEXT MBFONT MBCHANGESTATEFN MBINITSTATE)
        MBFONT _ (FONTCREATE 'HELVETICA 8 'BOLD))
)


(DEFMACRO WITHOUT-UPDATES (TEXTOBJ SCRATCHSEL &BODY BODY)
    ;; For TEdit windows, run BODY without updating the edit window for TEXTOBJ.  This is useful if you're making a log of changes to a document at
    ;; one time, where the changes are in essence atomic, and you don't need to see intermediate results.  It's also a good bit faster than constant
    ;; updating.
    ;; TEXTOBJ is the TEXTOBJ for the document you'll be modifying.
    ;; SCRATCHSEL should be the scratch selection (often used in this work)
    '[LET [(OLD-UNWIND-FLAG (FETCH (TEXTOBJ TXTDON'TUPDATE) OF ,TEXTOBJ]
         (CL:UNWIND-PROTECT
             (PROGN (replace (TEXTOBJ TXTDON'TUPDATE) of ,TEXTOBJ with T)
                    ,@BODY)
             (\SHOWSEL ,SCRATCHSEL NIL NIL)
             (replace SET of ,SCRATCHSEL with NIL)
             (\TEDIT.MARK.LINES.DIRTY ,TEXTOBJ 1 (fetch (TEXTOBJ TEXTLEN) of ,TEXTOBJ))
             (replace (TEXTOBJ TXTDON'TUPDATE) of ,TEXTOBJ with OLD-UNWIND-FLAG)
             (TEDIT.UPDATE.SCREEN ,TEXTOBJ))])


;; FROM TEDITHISTORY
```

```
(DECLARE%: EVAL@COMPILE

(RECORD TEDITHISTORYEVENT (;; Describes one event on the TEdit edit history list.

                          THACTION                                    ; A LITATOM, specifying what the event was
                          THPOINT                                     ; Was the selection to the left or right?
                          THLEN                                       ; The # of chars involved
                          THCH#                                       ; The starting ch#
                          THFIRSTPIECE                                ; First piece involved
                          THOLDINFO                                   ; Old info, for undo
                          THAUXINFO                                   ; Auxiliary info about the event, primarily for redo
                          THTEXTOBJ

                          ;; Place to remember a second textobj, for those like MOVE who need to remember both a source and a
                          ;; destination.

                          )
        THPOINT _ 'LEFT)
)
```

;; FROM TEDITFILE

```
(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)

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

;; FROM TEDITCOMMAND

```
(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

(PUTPROPS \INSERT\TTY\BUFFER MACRO (NIL (\TEDIT.INSERT.TTY.BUFFER ISCRSTRING IPASSSTRING TEXTOBJ SEL)))

(PUTPROPS \TEDIT.MOUSESTATE MACRO (BUTTON

        (* Test to see if only the specified mouse button is down. DOES NOT call GETMOUSESTATE, so the mouse-button info is
        the same as the last time it WAS called.)

                                   (SELECTQ (CAR BUTTON)
                                       (LEFT '(IEQP LASTMOUSEBUTTONS 4))
                                       (MIDDLE '(IEQP LASTMOUSEBUTTONS 1))
                                       (RIGHT '(IEQP LASTMOUSEBUTTONS 2))
                                       (SHOULDNT))))

(PUTPROPS \TEDIT.CHECK MACRO [ARGS (COND
                                      [(AND (BOUNDP 'CHECK)
                                            CHECK)
                                       (CONS 'PROGN (for I in ARGS as J on ARGS when (NOT (STRINGP I))
                                                       collect (LIST 'OR I (LIST 'HELP "TEdit consistency-check
                                                                               failure [RETURN to continue]:  "
                                                                           (COND
                                                                              ((STRINGP (CADR J)))
                                                                              (T (KWOTE I]
                                      (T (CONS COMMENTFLG ARGS])
)
)

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

[ACCESSFNS TEDITTERMCODE ((TTCLASS (LOGAND DATUM 224))
```

```
                            (TTDECODE (LOGAND DATUM 31]
)
)

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

(RPAQQ NONE.TTC 0)

(RPAQQ CHARDELETE.TTC 1)

(RPAQQ WORDDELETE.TTC 2)

(RPAQQ DELETE.TTC 3)

(RPAQQ FUNCTIONCALL.TTC 4)

(RPAQQ REDO.TTC 5)

(RPAQQ UNDO.TTC 6)

(RPAQQ CMD.TTC 7)

(RPAQQ NEXT.TTC 8)

(RPAQQ EXPAND.TTC 9)

(RPAQQ PUNCT.TTC 20)

(RPAQQ TEXT.TTC 21)

(RPAQQ WHITESPACE.TTC 22)

(CONSTANTS (NONE.TTC 0)
       (CHARDELETE.TTC 1)
       (WORDDELETE.TTC 2)
       (DELETE.TTC 3)
       (FUNCTIONCALL.TTC 4)
       (REDO.TTC 5)
       (UNDO.TTC 6)
       (CMD.TTC 7)
       (NEXT.TTC 8)
       (EXPAND.TTC 9)
       (PUNCT.TTC 20)
       (TEXT.TTC 21)
       (WHITESPACE.TTC 22))
)
)

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

(RPAQQ MSPACE 153)

(RPAQQ NSPACE 152)

(RPAQQ THINSPACE 159)

(RPAQQ FIGSPACE 154)

(CONSTANTS (MSPACE 153)
       (NSPACE 152)
       (THINSPACE 159)
       (FIGSPACE 154))
)
)
```

;; FROM TEDITWINDOW

```
(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

(DATATYPE TEDITCARET (TCNOWTIME
```

(* Used to hold the current time, when checking to see if a transition is due)

```
                       TCTHENTIME                              (* Time when the next transition is to take place)
                       TCFORCEDDOWN                            (* TCFORCEDOWN = T means (Make the caret visible at the
                                                               next call to \EDIT.FLIPCARET.))
                       TCUP
```

(* TCUP = T => The caret is NOT VISIBLE. Used to track the current state of the caret)

```
                       TCCARETDS                              (* The display stream that the caret appears in)
```

```
                              TCCURSORBM                            (* The CURSOR representing the caret)
                              TCCARETRATE                           (* %# of MSEC between caret up/down transitions)
                              TCFORCEUP

          (* T => The caret is not allowed to become visible. Used to keep the caret up during screen updates)

                              TCCARETX                              (* X position in the window that the caret appears at)
                              TCCARETY                              (* Y position in the window where the caret appears)
                              TCCARET                               (* A lisp CARET to be flashed (eventually))
                              )
          TCNOWTIME _ (CREATECELL \FIXP)
          TCTHENTIME _ (CREATECELL \FIXP)
          TCCURSORBM _ BXCARET TCCARETRATE _ \CARETRATE TCUP _ T TCCARET _ (\CARET.CREATE BXCARET))
)

(/DECLAREDATATYPE 'TEDITCARET '(POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER
                                          POINTER)
          ;; ---field descriptor list elided by lister---

          '22)
)

(/DECLAREDATATYPE 'TEDITCARET '(POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER POINTER
                                          POINTER)
          ;; ---field descriptor list elided by lister---

          '22)
```

;; FROM PCTREE added by Nakamura

```
(DECLARE%: EVAL@COMPILE

(DATATYPE PCTNODE (CHNUM                            ; Character #of piece in this node.
                              PCE                    ; PIECE
                              LO                     ; Subtree these nodes' ch#are less than this node.
                              HI                     ;  Subtree these nodes' ch#are more than this node.
                              BF                     ; Balance factor.
                                                     ; 1: Right(HI) Subtree is higher than left(lo) subtree.
                                                     ; 0: Right subtree and left subtree are same height
                                                     ; -1: Right(HI) Subtree is shorter than left(lo) subtree.
                              RANK                   ; (# of nodes in left subtree) +1

                              )
          CHNUM _ 0 BF _ 0 RANK _ 1)
)

(/DECLAREDATATYPE 'PCTNODE '(POINTER POINTER POINTER POINTER POINTER POINTER)
          ;; ---field descriptor list elided by lister---

          '12)
```

;;;; THE END
;; Bits in the CHARTABLE that control line breaking, and what happens when a line is broken on this character

```
(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: EVAL@COMPILE

(RPAQQ NOTBEFORE.LB 1)

(RPAQQ NOTAFTER.LB 2)

(RPAQQ BEFORE.LB 4)

(RPAQQ AFTER.LB 8)

(RPAQQ DISAPPEAR-IF-NOT-SPLIT.LB 16)

(RPAQQ NEWCHAR-IF-SPLIT.LB 32)

(CONSTANTS (NOTBEFORE.LB 1)
           (NOTAFTER.LB 2)
           (BEFORE.LB 4)
           (AFTER.LB 8)
           (DISAPPEAR-IF-NOT-SPLIT.LB 16)
           (NEWCHAR-IF-SPLIT.LB 32))
)
)
```

CONSTANT INDEX

RECORD INDEX

MACRO INDEX

VARIABLE INDEX

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