```
(RPAQQ AREDITCOMS
     [ (COMS                                                    ; AR.FORM functions and variables
          (FNS AR.FORM AR.FORM.GROUP.CREATE AR.FORM.CREATE AR.FORM.ICONFN AR.BUTTON.OBJ.CREATE
               AR.PROTECT.WARNING AR.INSTALL.TEDITSTREAM AR.KILL.ATTACHED.TEDIT.CLOSEFN))
       (COMS                                                    ; Managing buttons
          (FNS AR.BUTTON.GET.MENU AR.BUTTON.GET.SUBMENU AR.BUTTONFN.DOMENU AR.BUTTONFN.DOSUBMENU
               AR.RESET.SEL AR.REPLACE.FIELD.VAL AR.GET.ASSOCIATED.MENU.VAL AR.BUTTONFN.SELFIELD
               AR.BUTTONFN.OFFER.DEFAULT AR.MAP.BUTTONS AR.FIND.BUTTON AR.GET.BUTTON.FIELD.AS.TEXT
               AR.GET.BUTTON.FIELD.SHAPE AR.GET.NUMBER.FIELD))
       (COMS                                                    ; Handling the command menu
          (FNS AR.FORM.MENU.BUTTONFN AR.FORM.MENU.ACTIONFN AR.FORM.PROGRAMMATIC.GET AR.FORM.PROGRAMMATIC.PUT
               AR.DISCONNECT.WINDOW AR.RECONNECT.WINDOW AR.MARK.ACTIVE AR.TOBJ.ACTIVEP
               AR.FORM.MENU.TITLEMENUFN AR.MENU.CR.FN AR.GET.MENU.FROM.MAIN.WINDOW AR.CONFIRM))
       (COMS                                                    ; CLEAR
          (FNS AR.MENU.FN.CLEAR AR.FORM.CLEAR AR.FORM.SET.TO.EMPTY AR.DELETE.FIELD.VAL))
       (COMS                                                    ; GET
          (FNS AR.MENU.FN.GET AR.GET.AR AR.FETCH.AND.PARSE.AR AR.SET.FORM.NUMBER AR.GET.SCRATCH.STREAM
               AR.COPY.AND.INDEX.AR AR.MALFORMED.AR AR.TEXTSTREAM.LOAD AR.REPLACE.FILL.INS))
       (COMS                                                    ; PUT
          (FNS AR.MENU.FN.PUT AR.MENU.FN.PUT&GET AR.MENU.FN.PUT&GETNEXT AR.FORM.SAVE AR.GET.SUBMIT.NUM
               AR.FIND.EDIT.CHANGES AR.NOTE.FIELD.CHANGED AR.SEND.MESSAGE AR.COPY.BUTTON.FIELD
               AR.UPDATE.AR.INFO AR.PUT.FAILED)
          (FNS AR.CHECK.FIELDS AR.CHECK.MENU AR.CHECK.SHORTSTRING AR.CHECK.SUBMENU))
       (COMS                                                    ; Special
          (FNS AR.FORM.GET/PUT.FILE AR.GET.NEXT AR.FORM.FILL.IN.DEFAULTS AR.CURRENT.LISP.VERSION)
                                                                ; Misc
          (FNS AR.PROMPT AR.PROMPT.PRINT AR.PROMPT.CLEAR AR.GET.FILENAME AR.READ.NUMBER AR.FILENAME
               AR.READ.BYTES AR.USERNAME))
       (COMS                                                    ; These have special knowledge of TEdit I wish I didn't really
                                                                ; need
          (FNS TEDIT.FAST.RAW.INCLUDE AR.PIECE.CHANGED)
                                                                ; Patch for Lyric
          (FNS AR.UNSELECT.ITEM))
       (COMS                                                    ; Hardcopying AR's
          (FNS AR.DISPLAY AR.HARDCOPY AR.DISPLAY.TEXTSTREAM)
          (INITVARS (AR.HARDCOPY.WIDTH 504)
               (AR.HARDCOPY.MAXLENGTH 40000)
               (AR.DISPLAY.FORMAT NIL)))
       (COMS                                                    ; These VARS are AR-system change these to work on different
                                                                ; AR databases
          (VARS AR.FORM.FORMAT AR.FORM.SPECS AR.INTERESTING.SUBMIT.FIELDS)
          (VARS (AR.DIRECTORY "{AR:MV:Envos}<LispARs>")
               (AR.INFO.FILE.NAME "{AR:MV:Envos}<LispARs>LispARs.tds")
               (AR.SUBMIT.NUM.FILE.NAME "{AR:MV:Envos}<LispARs>LispARs.num")
               (AR.IDENTIFICATION.STRING "AR")))
       (INITVARS (ARBUTTONFONT (FONTCREATE 'HELVETICA 12 'BOLD))
          (ARFONT (FONTCREATE 'TIMESROMAN 10))
          (ARBOLDFONT (FONTCREATE 'HELVETICA 10 'BOLD))
          (ARHEADERFONT (FONTCREATE 'HELVETICA 8))
          (AR.ICONFONT (FONTCREATE 'GACHA 8))
          (AR.FILE.TRIES 10)
          (AR.NO.MESSAGE.FLG NIL))
       (VARS (AR.NULL.BUTTON.VALUE (PACKC))
             AR.FORM.MENU.TITLEMENU.ITEMS
             (AR.FORM.MENU.TITLEMENU)
             AR.FORM.ICONSPEC)
       [DECLARE%: EVAL@COMPILE DONTCOPY (GLOBALVARS AR.FORM.ICONSPEC AR.NULL.BUTTON.VALUE
                                          AR.HARDCOPY.PAGENO.KLUDGE.OFFSET AR.MENU.READTABLE
                                          TEDIT.READTABLE AR.FORM.MENU.TITLEMENU)
          (LOCALVARS . T)
          (P                                                    ; Need TEDITDECLS for TEDIT.FAST.RAW.INCLUDE
             (OR (GET 'TEDITDECLS 'FILE)
                 (LOAD 'TEDITDECLS]
       [DECLARE%: EVAL@COMPILE DOCOPY
          (P (CL:PROCLAIM '(CL:SPECIAL AR.INFO.FILE.NAME AR.SUBMIT.NUM.FILE.NAME AR.DIRECTORY
                             AR.NO.MESSAGE.FLG ARBUTTONFONT ARFONT ARBOLDFONT ARHEADERFONT AR.ICONFONT
                             AR.FILE.TRIES AR.HARDCOPY.MAXLENGTH AR.FORM.FORMAT AR.FORM.SPECS
                             AR.HARDCOPY.WIDTH AR.DISPLAY.FORMAT AR.IDENTIFICATION.STRING
                             AR.FORM.MENU.TITLEMENU.ITEMS AR.INTERESTING.SUBMIT.FIELDS]
       (FILES (SYSLOAD)
          ARQUERY TABLEBROWSER TEDIT READNUMBER)
```

```
        [VARS (AR.HARDCOPY.PAGENO.KLUDGE.OFFSET (COND ((> (IDATE TEDITSYSTEMDATE)
                                                          (IDATE "23-feb-88 0000"))
                                                       ; Bug was fixed
                                                      0)
                                                     (T 2]
        (DECLARE%: DONTEVAL@LOAD DOCOPY (P (COND ((EQ MAKESYSNAME :LYRIC)
                                                  (FILESLOAD (SYSLOAD)
                                                             MVALUESPATCH)
                                                  (MOVD? 'AR.UNSELECT.ITEM 'TB.UNSELECT.ITEM NIL T)))
                                          (PUTD 'AR.UNSELECT.ITEM NIL))
            (P                                               ; Install background menu command.  Smash any previous
                                                             ; AREdit.
              [/RPLACD [OR (CL:ASSOC "AR Edit" BackgroundMenuCommands :TEST 'STRING-EQUAL)
                          (CAR (RPAQ BackgroundMenuCommands (CONS (LIST "AR Edit")
                                                                  BackgroundMenuCommands)))]
                   '('(AR.FORM)
                      "Create a new AR editor for the Lisp AR database"
                      (SUBITEMS ("New AR form" '(AR.FORM)
                                   "Creates a new AR editor, cleared ready to submit a new AR.")
                                ("Load AR" '(AR.FORM (AR.READ.NUMBER))
                                   "Creates a new AR editor and loads a specified AR into it")
                                ("Display AR" '(AR.DISPLAY (AR.READ.NUMBER))
                                   "Displays a specified AR in a read-only window")
                                ("AR Query Form" '(AR.QFORM.CREATE)
                                   "Creates an AR Query Form"]
              (RPAQ BackgroundMenu )))
        (DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVARS (ADDVARS (NLAMA)
                                                                             (NLAML)
                                                                             (LAMA AR.PROMPT.PRINT)))
```

;; AR.FORM functions and variables

(DEFINEQ

(**AR.FORM**
```
  [LAMBDA (NUM)                                              ; Edited 22-Feb-88 17:13 by bvm
    (ADD.PROCESS '[,(FUNCTION AR.FORM.GROUP.CREATE)
                   ',NUM
                   ',(PROGN                                  ; Get region here in the mouse process so that user can ^E
                       (GETREGION 450 200]
             'NAME
             'AR.FORM.NEW])
```

(**AR.FORM.GROUP.CREATE**
```
  [LAMBDA (INITIAL.NUM FORMWINDOW)                           ; Edited  4-Aug-88 15:24 by bvm
    (PROG (FORMSTREAM MENUW WREG)
          (if (WINDOWP FORMWINDOW)
              then                                           ; Already have window
                (SETQ WREG (WINDOWPROP FORMWINDOW 'REGION))
            else (SETQ WREG (OR (REGIONP FORMWINDOW)
                                (GETREGION 450 200)))
                 (replace (REGION HEIGHT) of WREG with (- (fetch (REGION HEIGHT) of WREG)
                                                          [HEIGHTIFWINDOW (TIMES 2 (FONTPROP DEFAULTFONT
                                                                                             'HEIGHT]
                                                          40))  ; Subtract out the height for the menu and prompt windows.
                 (SETQ FORMWINDOW (CREATEW WREG "New Bug Report")))
      ;; set up main window
          (WINDOWADDPROP FORMWINDOW 'CLOSEFN (FUNCTION AR.KILL.ATTACHED.TEDIT.CLOSEFN))
          (WINDOWPROP FORMWINDOW 'MINSIZE (CONS 450 60))
          (WINDOWPROP FORMWINDOW 'AR.WINDOW.PROC.NAME 'AR.FORM)
          (WINDOWPROP FORMWINDOW 'ICONFN (FUNCTION AR.FORM.ICONFN))
      ;; set up menu window
          (SETQ MENUW (CREATEW (create REGION
                                       LEFT _ (fetch (REGION LEFT) of WREG)
                                       BOTTOM _ (fetch (REGION PTOP) of WREG)
                                       WIDTH _ (fetch (REGION WIDTH) of WREG)
                                       HEIGHT _ 40)
                               (CONCAT AR.IDENTIFICATION.STRING " Bug Report Editor")))
          (ATTACHWINDOW MENUW FORMWINDOW 'TOP 'JUSTIFY NIL)
          (WINDOWPROP MENUW 'MAXSIZE (CONS 0 40))
          (WINDOWPROP MENUW 'MINSIZE (CONS 0 40))
          (WINDOWPROP MENUW 'AR.WINDOW.PROC.NAME 'AR.FORM.MENU)
          (if (NOT (AND (BOUNDP 'AR.MENU.READTABLE)
                        (READTABLEP AR.MENU.READTABLE)))
              then (SETQ AR.MENU.READTABLE (COPYREADTABLE TEDIT.READTABLE))
                   (TEDIT.SETFUNCTION (CHARCODE CR)
                           (FUNCTION AR.MENU.CR.FN)
                           AR.MENU.READTABLE))
          (GETPROMPTWINDOW FORMWINDOW 2)
          [PROGN                                             ; First, install the menu.  It would be nice to do this last (since
                                                             ; you can't use it yet), but need it for setting the form number
              (AR.FORM.CREATE MENUW ARBUTTONFONT '((New FIELDTYPE BUTTON FN AR.FORM.MENU.BUTTONFN)
                                                   (Get FIELDTYPE BUTTON FN AR.FORM.MENU.BUTTONFN)
                                                   (Put FIELDTYPE BUTTON FN AR.FORM.MENU.BUTTONFN)
```

```
                                                         (Number%: FIELDTYPE STRING))
                    '(New TAB Get TAB Put TAB Number%: TAB CR)
                    (LIST 'READTABLE AR.MENU.READTABLE 'TITLEMENUFN (FUNCTION NIL)
                           'PROMPTWINDOW
                           'DON'T))
              (AND NIL (until (WINDOWPROP MENUW 'LINES) do        ; wait until the menu is totally initialized.  Is this kludge
                                                                   ; necessary?
                                              (BLOCK 1000]
              (SETQ FORMSTREAM (AR.FORM.CREATE FORMWINDOW ARBOLDFONT AR.FORM.SPECS AR.FORM.FORMAT 'DON'T))
                                                                   ; create AR form for main window
        (if (OR (NULL INITIAL.NUM)
                (EQ (AR.GET.AR FORMWINDOW INITIAL.NUM FORMSTREAM)
                    'XCL:FILE-NOT-FOUND))
            then                                                   ; Either nothing to get, or AR doesn't exist, so pretend it was just
                                                                   ; a New command
                  (AR.FORM.CLEAR FORMSTREAM T T))                  ; Now that we have the textstream we want, let TEdit display it
            (AR.INSTALL.TEDITSTREAM FORMWINDOW FORMSTREAM)
  ;; Now that we're about ready, enable the title menu.  You might think this was a textprop, but you'd be wrong.
           (WINDOWPROP MENUW 'TEDIT.TITLEMENUFN (FUNCTION AR.FORM.MENU.TITLEMENUFN))
           (replace (TEXTOBJ MENUFLG) of (TEXTOBJ MENUW) with T)
           (RETURN FORMWINDOW])
```

(**AR.FORM.CREATE**

```
  [LAMBDA (FORMWINDOW BUTTONFONT FORM.SPECS FORM.FORMAT TEDITPROPS)
                                                                   ; Edited 17-Feb-88 15:47 by bvm
  ;; Create an AR form in FORMWINDOW as specified by FORM.SPECS (button details) and FORM.FORMAT (layout of the fields).  BUTTONFONT
  ;; is used for buttons that don't specify their own font in FORM.SPECS.  TEDITPROPS is passed on to TEdit; if it is the symbol DON'T, we don't
  ;; create a TEdit process, but just return the textstream.
    (LET
      ([FORMSTREAM (OPENTEXTSTREAM "" NIL NIL NIL `(FONT ,ARFONT PARALOOKS (PARALEADING 2)
                                                          TEDIT.TENTATIVE NIL]
       (NTABS 0)
       (WIDTH (WINDOWPROP FORMWINDOW 'WIDTH))
       (CH# 1)
       BUTTON.POSITIONS SELECT.POINTS TAB.CH# TABSTOPS)
      [for FIELD.OR.SPACE in FORM.FORMAT
         do (BLOCK)
            (if (EQ FIELD.OR.SPACE 'TAB)
                then                                               ; Separates fields all on one line
                   (TEDIT.INSERT FORMSTREAM "    " (SETQ TAB.CH# CH#))
                   (add NTABS 1)
                   (add CH# 1)
              elseif (EQ FIELD.OR.SPACE 'CR)
                then                                               ; Go to a new line.  Come up with tabs to divide the space evenly
                                                                   ; among the fields
                   (if (> NTABS 0)
                       then (push TABSTOPS NTABS TAB.CH#)
                            (SETQ NTABS 0))
                   (TEDIT.INSERT FORMSTREAM "
                         " CH#)
                   (add CH# 1)
              elseif (STRINGP FIELD.OR.SPACE)
                then (TEDIT.INSERT FORMSTREAM FIELD.OR.SPACE CH#)
                   (add CH# (NCHARS FIELD.OR.SPACE))
                else                                               ; Make a button
                   (LET* ((BUTTONSPEC (CDR (ASSOC FIELD.OR.SPACE FORM.SPECS)))
                          (BUTTON.TYPE (LISTGET BUTTONSPEC 'FIELDTYPE))
                          (BUTTON.OBJ (AR.BUTTON.OBJ.CREATE BUTTONSPEC FIELD.OR.SPACE BUTTONFONT))
                          (PRE.FIELD (SELECTQ BUTTON.TYPE
                                        (BUTTON "")
                                        ((MENU SUBMENU)
                                              "   {")
                                        "   "))
                          (PRE.FIELD.NCHARS (NCHARS PRE.FIELD)))
                         (BLOCK)
                         (TEDIT.INSERT.OBJECT BUTTON.OBJ FORMSTREAM CH#)
                                                                   ; Insert the button object, make it unprotected
                         (push BUTTON.POSITIONS CH#)
                         (add CH# 1)
                         (if (> PRE.FIELD.NCHARS 0)
                             then (TEDIT.INSERT FORMSTREAM PRE.FIELD CH#)
                                  [if (NOT (IMAGEOBJPROP BUTTON.OBJ 'AR.PROTECTED.FLG))
                                      then                         ; Allow selection after the pre-field
                                         (push SELECT.POINTS (+ CH# (SUB1 PRE.FIELD.NCHARS]
                                  (add CH# PRE.FIELD.NCHARS))
                         (IMAGEOBJPROP BUTTON.OBJ 'AR.FIELD.START (ADD1 PRE.FIELD.NCHARS))
                         (IMAGEOBJPROP BUTTON.OBJ 'AR.FIELD.LEN 0) ; Field currently empty
                         (SELECTQ BUTTON.TYPE
                             ((MENU SUBMENU)                       ; Close the braces
                                  (TEDIT.INSERT FORMSTREAM "}" CH#)
                                  (add CH# 1))
                             NIL]
       (TEDIT.LOOKS FORMSTREAM '(PROTECTED ON)
              1 CH#)                                               ; default char looks: everything is protected
```

```
      (for N in BUTTON.POSITIONS do                                    ; Let buttons be touched
                              (TEDIT.LOOKS FORMSTREAM '(PROTECTED OFF)
                                      N 1))
      (for N in SELECT.POINTS do                                       ; Allow selection after string buttons
                              (TEDIT.LOOKS FORMSTREAM '(SELECTPOINT ON)
                                      N 1))
      (while TABSTOPS bind CACHED.TABS TB
         do                                                            ; Process each <#tabs chpos> pair and set a tab stop there.
            (SETQ NTABS (pop TABSTOPS))
            (TEDIT.PARALOOKS
             FORMSTREAM
             (if (CDR (ASSOC NTABS CACHED.TABS))
                 else                                                  ; Cache tab settings for this number of tabs
                     [push CACHED.TABS (CONS NTABS
                                             (SETQ TB
                                              '(TABS (NIL ,@(for I from 1 to NTABS
                                                                 bind (TABWIDTH _ (IQUOTIENT WIDTH (ADD1 NTABS)))
                                                                 collect (CONS (ITIMES I TABWIDTH)
                                                                               'LEFT]
                     TB)
            (pop TABSTOPS)
            1))
      (TEDIT.STREAMCHANGEDP FORMSTREAM T)
      (if (EQ TEDITPROPS 'DON'T)
          then                                                         ; Don't install it
              FORMSTREAM
        else (AR.INSTALL.TEDITSTREAM FORMWINDOW FORMSTREAM TEDITPROPS])
```

(**AR.FORM.ICONFN**
```
  [LAMBDA (WINDOW OLDICON)                                             ; Edited  1-Mar-88 17:33 by bvm
    (OR OLDICON (TITLEDICONW AR.FORM.ICONSPEC (WINDOWPROP WINDOW 'AR.FORM.NUMBER)
                       AR.ICONFONT
                       (WINDOWPROP WINDOW 'ICONPOSITION)
                       NIL NIL 'FILE])
```

(**AR.BUTTON.OBJ.CREATE**
```
  [LAMBDA (BUTTONSPEC BUTTON.NAME BUTTON.FONT)                         ; Edited  4-Aug-88 15:27 by bvm
    (PROG ((BUTTON.TYPE (LISTGET BUTTONSPEC 'FIELDTYPE))
           OBJ FONT TEM)
          (if (AND (EQ BUTTON.TYPE 'STRING)
                   (LISTGET BUTTONSPEC 'MAXCHARS))
              then                                                     ; if a string has a max length given, treat it as a SHORTSTRING
                  (SETQ BUTTON.TYPE 'SHORTSTRING))
          (SETQ OBJ (MBUTTON.CREATE BUTTON.NAME (OR (LISTGET BUTTONSPEC 'FN)
                                                    (SELECTQ BUTTON.TYPE
                                                        (PROTECTEDSTRING
                                                            (FUNCTION AR.PROTECT.WARNING))
                                                        ((STRING SHORTSTRING)
                                                            (FUNCTION AR.BUTTONFN.SELFIELD))
                                                        (MENU (FUNCTION AR.BUTTONFN.DOMENU))
                                                        (SUBMENU (FUNCTION AR.BUTTONFN.DOSUBMENU))
                                                        (ERROR "Bad Button Type" BUTTON.TYPE)))
                                    (if (SETQ FONT (LISTGET BUTTONSPEC 'FONT))
                                        then (FONTCREATE (if (LITATOM FONT)
                                                             then          ; a method of indirection
                                                                 (EVALV FONT)
                                                           else FONT))
                                      else BUTTON.FONT)))
          (IMAGEOBJPROP OBJ 'AR.CHECK.FN (SELECTQ BUTTON.TYPE
                                             ((BUTTON PROTECTEDSTRING STRING)
                                                 (FUNCTION NIL))
                                             (SHORTSTRING (FUNCTION AR.CHECK.SHORTSTRING))
                                             (MENU (FUNCTION AR.CHECK.MENU))
                                             (SUBMENU (FUNCTION AR.CHECK.SUBMENU))
                                             (ERROR "Bad Button Type" BUTTON.TYPE)))
          (SELECTQ BUTTON.TYPE
              ((BUTTON PROTECTEDSTRING MENU SUBMENU)
                  (IMAGEOBJPROP OBJ 'AR.PROTECTED.FLG BUTTON.TYPE))
              NIL)
          (SELECTQ BUTTON.TYPE
              (SHORTSTRING (IMAGEOBJPROP OBJ 'AR.MAX.LEN (LISTGET BUTTONSPEC 'MAXCHARS)))
              (MENU (IMAGEOBJPROP OBJ 'AR.ASSOCIATED.SUBMENU (LISTGET BUTTONSPEC 'ASSOCSUBMENU))
                    (IMAGEOBJPROP OBJ 'AR.MENU.LIST (LISTGET BUTTONSPEC 'MENULIST)))
              (SUBMENU (IMAGEOBJPROP OBJ 'AR.ASSOCIATED.MENU (LISTGET BUTTONSPEC 'ASSOCMENU))
                       (IMAGEOBJPROP OBJ 'AR.SUBMENU.LIST (LISTGET BUTTONSPEC 'SUBMENULIST)))
              NIL)
          (if (SETQ TEM (LISTGET BUTTONSPEC 'INITIALVALUE))
              then (IMAGEOBJPROP OBJ 'INITIALVALUE TEM))
          (if (SETQ TEM (LISTGET BUTTONSPEC 'FILLINVALUE))
              then (IMAGEOBJPROP OBJ 'FILLINVALUE TEM))
          (RETURN OBJ])
```

(**AR.PROTECT.WARNING**
```
  [LAMBDA (OBJ SEL WINDOW)                                             ; Edited 20-Jul-88 17:04 by bvm
```

```
     (AR.PROMPT.PRINT WINDOW :CLEAR "The field %"" (IMAGEOBJPROP OBJ 'MBTEXT)
            "%" is not editable."])
```

(**AR.INSTALL.TEDITSTREAM**
```
   [LAMBDA (FORMWINDOW FORMSTREAM TEDITPROPS)                          ; Edited 12-Feb-88 15:59 by bvm
```
   ;; Given a TEdit stream FORMSTREAM, install it in the window FORMWINDOW
```
   (LET ((FORMWINDOW.PROC (WINDOWPROP FORMWINDOW 'PROCESS))
          NEWPROC TEM)
         (COND
            ((AND FORMWINDOW.PROC (PROCESSP FORMWINDOW.PROC))
             (TEDIT.KILL FORMWINDOW)))
         [SETQ NEWPROC (TEDIT FORMSTREAM FORMWINDOW NIL (APPEND TEDITPROPS
                                                    '(FONT ,ARFONT SEL DON'T LEAVETTY T
                                                          TEDIT.TENTATIVE NIL]
         (if (SETQ TEM (WINDOWPROP FORMWINDOW 'AR.WINDOW.PROC.NAME))
             then (PROCESSPROP NEWPROC 'NAME TEM])
```

(**AR.KILL.ATTACHED.TEDIT.CLOSEFN**
```
   [LAMBDA (WINDOW)                                                    (* edited%: "30-Aug-84 09:58")
      (for AW in (ATTACHEDWINDOWS WINDOW) bind TSTREAM when (SETQ TSTREAM (WINDOWPROP AW 'TEXTSTREAM))
         do (DETACHWINDOW AW)
            (TEDIT.KILL (TEXTOBJ TSTREAM))
            (CLOSEW AW)
         finally (if (SETQ TSTREAM (WINDOWPROP WINDOW 'TEXTSTREAM))
                     then (TEDIT.KILL (TEXTOBJ TSTREAM])
)
```

;; Managing buttons

(DEFINEQ

(**AR.BUTTON.GET.MENU**
```
   [LAMBDA (OBJ)                                                       ; Edited 12-Feb-88 11:49 by bvm
      (OR (IMAGEOBJPROP OBJ 'AR.MENU)
          (LET [(MENU (create MENU
                             ITEMS _ '[,@(IMAGEOBJPROP OBJ 'AR.MENU.LIST)
                                          (NIL ',AR.NULL.BUTTON.VALUE]
                             TITLE _ (IMAGEOBJPROP OBJ 'MBTEXT]
               (IMAGEOBJPROP OBJ 'AR.MENU MENU)
               MENU])
```

(**AR.BUTTON.GET.SUBMENU**
```
   [LAMBDA (OBJ ASSOCIATED.MENU.VAL)                                   ; Edited 12-Feb-88 11:53 by bvm
```
   ;; Get the submenu from OBJ associated with ASSOCIATED.MENU.VAL. The submenus are stored as a plist on the AR.SUBMENUS prop
```
   (LET ((SUBMENUS (IMAGEOBJPROP OBJ 'AR.SUBMENUS))
          MENU)
        (if (LISTGET SUBMENUS ASSOCIATED.MENU.VAL)
            else [SETQ MENU (create MENU
                                  ITEMS _ '[,@(LISTGET (IMAGEOBJPROP OBJ 'AR.SUBMENU.LIST)
                                                  ASSOCIATED.MENU.VAL)
                                             (NIL ',AR.NULL.BUTTON.VALUE]
                                  TITLE _ (IMAGEOBJPROP OBJ 'MBTEXT]
                 (if SUBMENUS
                     then (LISTPUT SUBMENUS ASSOCIATED.MENU.VAL MENU)
                   else (IMAGEOBJPROP OBJ 'AR.SUBMENUS (LIST ASSOCIATED.MENU.VAL MENU)))
                 MENU])
```

(**AR.BUTTONFN.DOMENU**
```
   [LAMBDA (OBJ SEL WINDOW)                                            ; Edited 12-Feb-88 16:05 by bvm
      (LET ((NEWVAL (MENU (AR.BUTTON.GET.MENU OBJ)))
             ASSOC.SUBMENU STREAM BUTTON)
           [if [AND NEWVAL (NOT (EQUAL NEWVAL (IMAGEOBJPROP OBJ 'AR.FIELD.VALUE]
               then (AR.REPLACE.FIELD.VAL OBJ (fetch (SELECTION CH#) of SEL)
                            (SETQ STREAM (WINDOWPROP WINDOW 'TEXTSTREAM))
                            NEWVAL)
                    (if (SETQ ASSOC.SUBMENU (IMAGEOBJPROP OBJ 'AR.ASSOCIATED.SUBMENU))
                        then                                  ; There is a submenu related to this button (e.g., System ->
                                                              ; Subsystem).  Need to clear the submenu value when the main
                                                              ; value changed
                             (if (SETQ BUTTON (AR.FIND.BUTTON STREAM ASSOC.SUBMENU))
                                 then (AR.REPLACE.FIELD.VAL (CAR BUTTON)
                                              (CDR BUTTON)
                                              STREAM AR.NULL.BUTTON.VALUE)
                                      (IMAGEOBJPROP (CAR BUTTON)
                                             'AR.ASSOCIATED.MENU.VAL NEWVAL)
                               else (ERROR "Can't find associated submenu button" ASSOC.SUBMENU]
           (AR.RESET.SEL WINDOW])
```

(**AR.BUTTONFN.DOSUBMENU**

```
  [LAMBDA (OBJ SEL WINDOW)                                              (* edited%: "30-Aug-84 09:57")
    (PROG ((STREAM (WINDOWPROP WINDOW 'TEXTSTREAM))
           (ASSOCIATED.MENU.VAL (AR.GET.ASSOCIATED.MENU.VAL OBJ WINDOW))
           NEWVAL)
          (SETQ NEWVAL (MENU (AR.BUTTON.GET.SUBMENU OBJ ASSOCIATED.MENU.VAL)))
          (if [AND NEWVAL (NOT (EQUAL NEWVAL (IMAGEOBJPROP OBJ 'AR.FIELD.VALUE]
              then (AR.REPLACE.FIELD.VAL OBJ (fetch (SELECTION CH#) of SEL)
                          STREAM NEWVAL))
          (AR.RESET.SEL WINDOW])
```

(AR.RESET.SEL

```
  [LAMBDA (WINDOW.OR.STREAM)                                            ; Edited 14-Feb-88 02:18 by bvm
    (if NIL
        then (LET ((TOBJ (TEXTOBJ WINDOW.OR.STREAM))
                   SEL)
                  (TEDIT.SHOWSEL (TEXTSTREAM TOBJ))
                  (if (SETQ SEL (fetch (TEXTOBJ SEL) of TOBJ))
                      then                                              ; Manually turn off selection, then mark current selection not set
                           (replace (SELECTION SET) of SEL with NIL)))
        else ;; for now, since I can't figure out how to turn off the selection, just put the selection in the first safe <i.e. unprotected> place

             (AR.MAP.BUTTONS WINDOW.OR.STREAM (FUNCTION (LAMBDA (TOBJ OBJ CH#)
                                                         ; If OBJ is unprotected, set TEdit's selection at its beginning
                                                         (if (NOT (IMAGEOBJPROP OBJ 'AR.PROTECTED.FLG))
                                                             then (TEDIT.SETSEL TOBJ (fetch (SELECTION CH#)
                                                                                        of (
                                                                                           MBUTTON.FIND.NEXT.FIELD
                                                                                           TOBJ CH#))
                                                                       0
                                                                       'LEFT)
                                                                  (TEDIT.SHOWSEL (TEXTSTREAM TOBJ))
                                                                  ; Don't let it be visible
                                                                  T])
```

(AR.REPLACE.FIELD.VAL

```
  [LAMBDA (OBJ CH# WINDOW.OR.STREAM NEWVAL)                             ; Edited 12-Feb-88 11:40 by bvm
    (PROG ((TOBJ (TEXTOBJ WINDOW.OR.STREAM))
           (NEWVAL.NCHARS (NCHARS NEWVAL))
           (PROTECTEDP (IMAGEOBJPROP OBJ 'AR.PROTECTED.FLG))
           OLDLEN INSERT.CH# SEL)
          (if PROTECTEDP
              then (SETQ INSERT.CH# (+ (IMAGEOBJPROP OBJ 'AR.FIELD.START)
                                       CH#))
                   (SETQ OLDLEN (IMAGEOBJPROP OBJ 'AR.FIELD.LEN))
                   (IMAGEOBJPROP OBJ 'AR.FIELD.LEN NEWVAL.NCHARS)
                   (IMAGEOBJPROP OBJ 'AR.FIELD.VALUE NEWVAL)
            elseif (SETQ SEL (MBUTTON.FIND.NEXT.FIELD TOBJ CH#))
              then (SETQ INSERT.CH# (fetch (SELECTION CH#) of SEL))
                   (SETQ OLDLEN (fetch (SELECTION DCH) of SEL))
              else (SHOULDNT "Can't find button field"))
          (TEDIT.DELETE TOBJ INSERT.CH# OLDLEN)
          (if (> NEWVAL.NCHARS 0)
              then (TEDIT.INSERT TOBJ (if (NUMBERP NEWVAL)
                                          then (MKSTRING NEWVAL)
                                          else NEWVAL)
                         INSERT.CH#)
                   (TEDIT.LOOKS TOBJ [CONS 'PROTECTED (if PROTECTEDP
                                                          then '(ON)
                                                          else '(OFF]
                         INSERT.CH# NEWVAL.NCHARS])
```

(AR.GET.ASSOCIATED.MENU.VAL

```
  [LAMBDA (OBJ WINDOW)                                                  (* edited%: "30-Aug-84 09:58")
    (PROG [(BUTTON (AR.FIND.BUTTON (WINDOWPROP WINDOW 'TEXTSTREAM)
                          (IMAGEOBJPROP OBJ 'AR.ASSOCIATED.MENU]
          [if (NULL BUTTON)
              then (ERROR "Can't find associated menu value" (IMAGEOBJPROP OBJ 'AR.ASSOCIATED.MENU]
          (RETURN (IMAGEOBJPROP (CAR BUTTON)
                          'AR.FIELD.VALUE])
```

(AR.BUTTONFN.SELFIELD

```
  [LAMBDA (OBJ SEL WINDOW)                                              ; Edited 16-Feb-88 13:17 by bvm

    ;; Button function for text fields--select the current text in delete pending mode

    (LET* ((TOBJ (fetch (SELECTION \TEXTOBJ) of SEL))
           (FIELD.SEL (MBUTTON.FIND.NEXT.FIELD TOBJ (fetch (SELECTION CH#) of SEL)))
           FIELD.CH# FIELD.LEN)
          (TEDIT.SETSEL TOBJ (fetch (SELECTION CH#) of FIELD.SEL)
                 (fetch (SELECTION DCH) of FIELD.SEL)
                 'LEFT T])
```

(AR.BUTTONFN.OFFER.DEFAULT

```
[LAMBDA (OBJ SEL WINDOW)                                                          ; Edited  4-Aug-88 17:24 by bvm
  ;; AR Button function that responds to a click by filling in the default value for the field, pending-delete selected so that you can overwrite it.

  (LET* ((TOBJ (fetch (SELECTION \TEXTOBJ) of SEL))
         (FIELD.SEL (MBUTTON.FIND.NEXT.FIELD TOBJ (fetch (SELECTION CH#) of SEL)))
         (FIELD.CH# (fetch (SELECTION CH#) of FIELD.SEL))
         (FIELD.LEN (fetch (SELECTION DCH) of FIELD.SEL))
          INFO)
    (if [AND (EQ FIELD.LEN 0)
             (SETQ INFO (IMAGEOBJPROP OBJ 'FILLINVALUE))
             (OR (NLISTP INFO)
                 (SETQ INFO (EVAL INFO]
        then                                                                      ; Nothing there yet, so offer default
            (TEDIT.INSERT TOBJ INFO FIELD.CH# '(PROTECTED OFF))
            (SETQ FIELD.LEN (NCHARS INFO)))
        (TEDIT.SETSEL TOBJ FIELD.CH# FIELD.LEN 'LEFT T])
```

(**AR.MAP.BUTTONS**
```
[LAMBDA (WINDOW.OR.STREAM MAPFN DEFAULT)                                           ; Edited 12-Feb-88 10:59 by bvm
  ;; Map over the buttons of the form in WINDOW.OR.STREAM, applying MAPFN to each button with args (TEXTOBJ BUTTONOBJ CH#).  Return
  ;; the value from the first application that returns non-NIL.  Return DEFAULT if all returned NIL.

  (bind (TOBJ _ (TEXTOBJ WINDOW.OR.STREAM))
        (CH# _ 0)
        BUTTON RESULT while (SETQ BUTTON (MBUTTON.FIND.NEXT.BUTTON TOBJ (add CH# 1)))
     when [SETQ RESULT (CL:FUNCALL MAPFN TOBJ (CAR BUTTON)
                                        (SETQ CH# (CDR BUTTON]
     do (RETURN RESULT) finally (RETURN DEFAULT])
```

(**AR.FIND.BUTTON**
```
[LAMBDA (WINDOW NAME)                                                             (* edited%: "30-Aug-84 09:57")
  (PROG ((TOBJ (TEXTOBJ WINDOW))
         (CH# 0)
          OBJ BUTTON)
    [while (PROGN (add CH# 1)
                  (SETQ BUTTON (MBUTTON.FIND.NEXT.BUTTON TOBJ CH#)))
       do (SETQ OBJ (CAR BUTTON))
          (SETQ CH# (CDR BUTTON))
       repeatuntil (EQ NAME (IMAGEOBJPROP OBJ 'MBTEXT]
    (RETURN BUTTON])
```

(**AR.GET.BUTTON.FIELD.AS.TEXT**
```
[LAMBDA (WINDOW BUTTON.NAME)                                                       ; Edited 12-Feb-88 11:05 by bvm
  ;; Given a button name and an AR form window, grab the value of the named button and return it as a string or symbol.

  (OR [AR.MAP.BUTTONS WINDOW (FUNCTION (LAMBDA (TOBJ OBJ CH#)
                                        (if (EQ (IMAGEOBJPROP OBJ 'MBTEXT)
                                                BUTTON.NAME)
                                            then (COND
                                                   ((OR (IMAGEOBJPROP OBJ 'AR.MENU.LIST)
                                                        (IMAGEOBJPROP OBJ 'AR.SUBMENU.LIST))
                                                         ; This is a multiple-choice button. Extract the value from the
                                                         ; button itself.
                                                    (OR (IMAGEOBJPROP OBJ 'AR.FIELD.VALUE)
                                                        ""))
                                                   (T        ; This is a text button.  Go looking for the next field and grab it
                                                             ; from there.
                                                    (MBUTTON.NEXT.FIELD.AS.TEXT TOBJ CH#]
      (ERROR "Can't find named button" BUTTON.NAME])
```

(**AR.GET.BUTTON.FIELD.SHAPE**
```
[LAMBDA (WINDOW.OR.STREAM BUTTON.NAME)                                             ; Edited 16-Feb-88 11:36 by bvm
  ;; Given a button name and an AR form window, return a dotted pair (ch# . length) describing where in the tedit stream the field lives and how long
  ;; it is.

  (OR [AR.MAP.BUTTONS WINDOW.OR.STREAM
             (FUNCTION (LAMBDA (TOBJ OBJ CH#)
                        (if (EQ (IMAGEOBJPROP OBJ 'MBTEXT)
                                BUTTON.NAME)
                            then (if (IMAGEOBJPROP OBJ 'AR.PROTECTED.FLG)
                                     then (CONS (+ (IMAGEOBJPROP OBJ 'AR.FIELD.START)
                                                   CH#)
                                                (IMAGEOBJPROP OBJ 'AR.FIELD.LEN))
                                     else (LET ((SEL (MBUTTON.FIND.NEXT.FIELD TOBJ CH#)))
                                            (if SEL
                                                then (CONS (fetch (SELECTION CH#) of SEL)
                                                           (fetch (SELECTION DCH) of SEL))
                                                else (SHOULDNT "Can't find field for button"]
      (ERROR "Can't find named button" BUTTON.NAME])
```

(**AR.GET.NUMBER.FIELD**
```
[LAMBDA (FORMWINDOW)                                                               ; Edited  5-Aug-88 11:21 by bvm
```

```
      ;; Return the AR number currently shown in the form's NUMBER field
      (MKATOM (AR.GET.BUTTON.FIELD.AS.TEXT (OR (AR.GET.MENU.FROM.MAIN.WINDOW FORMWINDOW)
                                                FORMWINDOW)
                 'Number%:])

)
```

;; Handling the command menu

```
(DEFINEQ

(AR.FORM.MENU.BUTTONFN
  [LAMBDA (OBJ SEL WINDOW)                                          ; Edited  5-Aug-88 11:01 by bvm
    (AR.FORM.MENU.ACTIONFN (\TEDIT.PRIMARYW (fetch (SELECTION \TEXTOBJ) of SEL))
           (EVAL (CADR (CL:ASSOC (IMAGEOBJPROP OBJ 'MBTEXT)
                          AR.FORM.MENU.TITLEMENU.ITEMS])


(AR.FORM.MENU.ACTIONFN
  [LAMBDA (MENUWINDOW OPERATION NUM.FOR.GET OPNAME)                 ; Edited  5-Aug-88 16:00 by bvm
    (ALLOW.BUTTON.EVENTS)
    (PROG* ((FORMWINDOW (WINDOWPROP MENUWINDOW 'MAINWINDOW))
            (MENUWINDOW.TEXTOBJ (WINDOWPROP MENUWINDOW 'TEXTOBJ))
            (FORMWINDOW.TEXTOBJ (WINDOWPROP FORMWINDOW 'TEXTOBJ))
            SUCCESS ARP BUSY)
           (AR.PROMPT.CLEAR FORMWINDOW)
           (if (OR (NOT (WINDOWPROP FORMWINDOW 'TEXTSTREAM))
                   (NULL MENUWINDOW.TEXTOBJ)
                   (NULL FORMWINDOW.TEXTOBJ))
               then (AR.PROMPT.PRINT FORMWINDOW "AR form munged!! --- Close this AR window and create another")
                    (RETURN))
           (if (SETQ BUSY (OR (SETQ ARP (AR.TOBJ.ACTIVEP MENUWINDOW.TEXTOBJ))
                              (AR.TOBJ.ACTIVEP FORMWINDOW.TEXTOBJ)))
               then ;; Sometimes this spuriously prints a message, typically on a new window.  Haven't figured out why.

                    (AR.PROMPT.PRINT FORMWINDOW (if ARP
                                                    then "AR "
                                                  else "Edit ")
                          (if (EQ BUSY T)
                              then "operation"
                            else BUSY)
                          " in progress -- please wait")
                    (RETURN))
           (CL:UNWIND-PROTECT
               [PROGN (AR.MARK.ACTIVE MENUWINDOW.TEXTOBJ (OR OPNAME (SETQ OPNAME OPERATION)))
                      (AR.MARK.ACTIVE FORMWINDOW.TEXTOBJ OPNAME)
                      (DSPFILL NIL 72 'PAINT MENUWINDOW)
                      (CLEARW FORMWINDOW)
                      (AR.DISCONNECT.WINDOW FORMWINDOW)
                      (SETQ SUCCESS (NLSETQ (SELECTQ OPERATION
                                              (Get (AR.MENU.FN.GET FORMWINDOW NUM.FOR.GET))
                                              (if (LISTP OPERATION)
                                                  then              ; FN + extra arg
                                                       (CL:FUNCALL (CAR OPERATION)
                                                              FORMWINDOW
                                                              (CADR OPERATION))
                                                else (CL:FUNCALL OPERATION FORMWINDOW])
               ;; On the way out, make sure we have success/failure indication
               (if (NULL SUCCESS)
                   then (AR.PROMPT.PRINT FORMWINDOW T "Command aborted"))
               (AR.MARK.ACTIVE MENUWINDOW.TEXTOBJ NIL)
               (AR.MARK.ACTIVE FORMWINDOW.TEXTOBJ NIL)
               (REDISPLAYW MENUWINDOW)
               (AR.RESET.SEL FORMWINDOW)
               (AR.RECONNECT.WINDOW FORMWINDOW)
               (SCROLLW FORMWINDOW 0.0 0.0])


(AR.FORM.PROGRAMMATIC.GET
  [LAMBDA (MENUW AR#)                                               ; Edited  5-Aug-88 11:03 by bvm
    (AR.FORM.MENU.ACTIONFN MENUW 'Get AR#])


(AR.FORM.PROGRAMMATIC.PUT
  [LAMBDA (MENUW)                                                   ; Edited  5-Aug-88 11:23 by bvm
    (AR.FORM.MENU.ACTIONFN MENUW (FUNCTION AR.MENU.FN.PUT])


(AR.DISCONNECT.WINDOW
  [LAMBDA (FORMWINDOW)                                              (* mjs "17-Feb-85 16:03")
    (replace (TEXTOBJ \WINDOW) of (TEXTOBJ (WINDOWPROP FORMWINDOW 'TEXTSTREAM)) with NIL])


(AR.RECONNECT.WINDOW
  [LAMBDA (FORMWINDOW)                                              ; Edited 20-Jan-88 16:38 by ckj
```

```
        (PROG [(TOBJ (TEXTOBJ (WINDOWPROP FORMWINDOW 'TEXTSTREAM]
              (replace (TEXTOBJ \WINDOW) of TOBJ with (LIST FORMWINDOW))
              (replace (LINEDESCRIPTOR NEXTLINE) of (CAR (fetch (TEXTOBJ LINES) of TOBJ)) with NIL)
              [\TEDIT.MARK.LINES.DIRTY TOBJ 1 (ADD1 (GETEOFPTR (WINDOWPROP FORMWINDOW 'TEXTSTREAM]
              (TEDIT.UPDATE.SCREEN TOBJ]))
```

(**AR.MARK.ACTIVE**
```
   [LAMBDA (TOBJ OP)                                              (* edited%: "16-May-84 16:13")
     (if TOBJ
         then (replace (TEXTOBJ EDITOPACTIVE) of TOBJ with OP])
```

(**AR.TOBJ.ACTIVEP**
```
   [LAMBDA (TOBJ)                                                 (* edited%: "16-May-84 16:15")
     (if (NULL TOBJ)
         then NIL
       else (fetch (TEXTOBJ EDITOPACTIVE) of TOBJ])
```

(**AR.FORM.MENU.TITLEMENUFN**
```
   [LAMBDA (TEXTSTREAM)                                           ; Edited  5-Aug-88 15:55 by bvm
     (LET [(OP (MENU (OR AR.FORM.MENU.TITLEMENU
                         (SETQ AR.FORM.MENU.TITLEMENU
                           (create MENU
                                   ITEMS _ AR.FORM.MENU.TITLEMENU.ITEMS
                                   TITLE _ "Extra AR Ops"
                                   CHANGEOFFSETFLG _ T
                                   CENTERFLG _ T
                                   WHENSELECTEDFN _ (FUNCTION CL:IDENTITY]
           (if OP
               then (AR.FORM.MENU.ACTIONFN (CAR (fetch (TEXTOBJ \WINDOW) of (TEXTOBJ TEXTSTREAM)))
                        (if (LISTP OP)
                            then (EVAL (CADR OP))
                          else OP)
                        NIL
                        (OR (CAR (LISTP OP))
                            OP])
```

(**AR.MENU.CR.FN**
```
   [LAMBDA (TEXTSTREAM TOBJ)                                      ; Edited  5-Aug-88 11:03 by bvm
     (AR.MARK.ACTIVE TOBJ NIL)
     (AR.FORM.PROGRAMMATIC.GET (\TEDIT.PRIMARYW TOBJ])
```

(**AR.GET.MENU.FROM.MAIN.WINDOW**
```
   [LAMBDA (FORMWINDOW)                                           ; Edited  5-Aug-88 11:23 by bvm
     (for W in (ATTACHEDWINDOWS FORMWINDOW) when (WINDOWPROP W 'TEXTOBJ) do (RETURN W])
```

(**AR.CONFIRM**
```
   [LAMBDA (WORDS FORMWINDOW)                                     (* mjs " 4-May-84 14:51")
     (AR.PROMPT WORDS FORMWINDOW)
     (MOUSECONFIRM NIL NIL (GETPROMPTWINDOW FORMWINDOW 2])
)
```

```
;; CLEAR

(DEFINEQ
```

(**AR.MENU.FN.CLEAR**
```
   [LAMBDA (FORMWINDOW FILL.INS)                                  ; Edited  5-Aug-88 16:03 by bvm
     (if (OR (NOT (TEDIT.STREAMCHANGEDP FORMWINDOW))
             (AR.CONFIRM "Form has been changed  --- confirm CLEAR" FORMWINDOW))
         then (CLEARW FORMWINDOW)
              (AR.FORM.CLEAR FORMWINDOW FILL.INS)
              (AR.FORM.SET.TO.EMPTY FORMWINDOW)
              (AR.PROMPT.PRINT FORMWINDOW :CLEAR (if FILL.INS
                                                    then "New form cleared"
                                                  else "Form erased."])
```

(**AR.FORM.CLEAR**
```
   [LAMBDA (WINDOW.OR.STREAM FILL.INS NEWFORMP)                   ; Edited  4-Aug-88 15:24 by bvm
```

;;; Create a clean, fresh AR editing window with no data in it but that shown in FILL.INS. If FILL.INS is T, fill fields that have an INITIALVALUE prop. If
;;; NEWFORMP is true, this is a new form, so don't have to erase old values.

```
     [AR.MAP.BUTTONS WINDOW.OR.STREAM (FUNCTION (LAMBDA (TOBJ OBJ CH#)
                                                    ; Delete all the fields
                                          (LET
                                           (INFO)
                                           (if [SETQ INFO (SELECTQ FILL.INS
                                                             (T
                                                    ; Use INITIALVALUE prop
```

```
                                                                (AND (SETQ INFO (IMAGEOBJPROP
                                                                                   OBJ
                                                                                   'INITIALVALUE))
                                                           (if (LISTP INFO)
                                                               then (EVAL INFO)
                                                               else INFO)))
                                                  (NIL NIL)
                                                  (CADR (ASSOC (IMAGEOBJPROP OBJ
                                                                              'MBTEXT)
                                                               FILL.INS]
                                        then        ; Caller specified initial contents
                                                  (AR.REPLACE.FIELD.VAL OBJ CH# TOBJ INFO)
                                   elseif (NOT NEWFORMP)
                                      then (AR.DELETE.FIELD.VAL OBJ CH# TOBJ))
                                                       ; Return NIL so that the iteration continues
                                  NIL]
        (TEDIT.STREAMCHANGEDP (TEXTSTREAM WINDOW.OR.STREAM)
              T])
```

(**AR.FORM.SET.TO.EMPTY**
```
  [LAMBDA (FORMWINDOW)                                                    ; Edited 22-Feb-88 16:14 by bvm

    ;; Sets window properties associated with an empty form.  Usually called in conjunction with AR.FORM.CLEAR

    (AR.SET.FORM.NUMBER FORMWINDOW NIL)
    (WINDOWPROP FORMWINDOW 'AR.FORM.SCRATCH.MAP NIL)
    (WINDOWPROP FORMWINDOW 'AR.FORM.SCRATCH.STREAM NIL)
    (WINDOWPROP FORMWINDOW 'AR.FORM.SCRATCH.STREAM2 NIL)
    (WINDOWPROP FORMWINDOW 'AR.GET/PUT.FILE.NAME NIL)
    (WINDOWPROP FORMWINDOW 'TITLE "New Bug Report"])
```

(**AR.DELETE.FIELD.VAL**
```
  [LAMBDA (OBJ CH# WINDOW.OR.STREAM)                                      ; Edited  4-Aug-88 15:22 by bvm

    ;; Delete the value associated with the AR form menu button OBJ.

    (LET ((TOBJ (TEXTOBJ WINDOW.OR.STREAM))
           SEL LEN)
         (if (IMAGEOBJPROP OBJ 'AR.PROTECTED.FLG)
             then                                                         ; Menu objects contain information about their length and
                                                                          ; position
                 (if (> (SETQ LEN (IMAGEOBJPROP OBJ 'AR.FIELD.LEN))
                        0)
                     then (TEDIT.DELETE TOBJ (+ (IMAGEOBJPROP OBJ 'AR.FIELD.START)
                                                CH#)
                                        LEN T)
                          (IMAGEOBJPROP OBJ 'AR.FIELD.LEN 0)
                          (IMAGEOBJPROP OBJ 'AR.FIELD.VALUE AR.NULL.BUTTON.VALUE))
           elseif (SETQ SEL (MBUTTON.FIND.NEXT.FIELD TOBJ CH#))
              then                                                        ; Text fields specified by selection
                 (if (> (SETQ LEN (fetch (SELECTION DCH) of SEL))
                        0)
                     then (TEDIT.DELETE TOBJ (fetch (SELECTION CH#) of SEL)
                                        LEN T))
           else (SHOULDNT "Can't find field for button"])
)
```

;; GET

(DEFINEQ

(**AR.MENU.FN.GET**
```
  [LAMBDA (FORMWINDOW CURR.NUM)                                           ; Edited  5-Aug-88 11:22 by bvm

    ;; Handles GET from the main menu

    (OR CURR.NUM (SETQ CURR.NUM (AR.GET.NUMBER.FIELD FORMWINDOW)))
    (if (NOT (FIXP CURR.NUM))
        then (AR.PROMPT.PRINT FORMWINDOW T "Bad number %"" CURR.NUM "%" -- Get aborted")
      elseif (OR (NULL (TEDIT.STREAMCHANGEDP FORMWINDOW))
                 (if (AR.CONFIRM "Form has been changed  --- confirm GET" FORMWINDOW)
                     else (AR.PROMPT.PRINT FORMWINDOW T "Get aborted")
                                                                          ; User disconfirmed the Get
                          NIL))
        then (AR.GET.AR FORMWINDOW CURR.NUM])
```

(**AR.GET.AR**
```
  [LAMBDA (FORMWINDOW NUM/OR/FILE FORMSTREAM)                             ; Edited  4-Aug-88 15:14 by bvm

    ;; Get an AR into the AR editing window.  FORMSTREAM defaults to the window's tedit stream, but can be explicit if this is a new window.  Returns
    ;; one of: NIL = success; XCL:FILE-NOT-FOUND = no such ar; else some error message (and the current form has been cleared).

    (AR.PROMPT.PRINT FORMWINDOW T "Retrieving " AR.IDENTIFICATION.STRING " " NUM/OR/FILE " ...")
    (CL:MULTIPLE-VALUE-BIND (MAP CONDITION)
        (AR.FETCH.AND.PARSE.AR NUM/OR/FILE (AR.GET.SCRATCH.STREAM FORMWINDOW))
      (if [OR CONDITION (PROGN                                            ; Now fill in the textstream with the appropriate fields from the
                                                                          ; AR.
```

```
                                    (WINDOWPROP FORMWINDOW 'AR.FORM.SCRATCH.MAP MAP)
                                    (WINDOWPROP FORMWINDOW 'AR.FORM.SCRATCH.STREAM2 NIL)
                                    (CL:MULTIPLE-VALUE-BIND (IGNORE C)
                                        (IGNORE-ERRORS (AR.TEXTSTREAM.LOAD FORMWINDOW FORMSTREAM))
                                      (SETQ CONDITION C))]
                 then                                                            ; Got an error
                        (CL:TYPECASE CONDITION
                            (XCL:FILE-NOT-FOUND
                              (AR.PROMPT.PRINT FORMWINDOW T AR.IDENTIFICATION.STRING " " NUM/OR/FILE " doesn't exist --
                                        Get aborted")
                              'XCL:FILE-NOT-FOUND)
                            (T                                                   ; Other unknown error--form is now inconsistent, since we have
                                                                                 ; smashed the old AR's scratch stream, so reset to blank form
                              (AR.PROMPT.PRINT FORMWINDOW T (CL:FORMAT NIL "Failed while loading ~A ~A: ~A"
                                                                 AR.IDENTIFICATION.STRING NUM/OR/FILE CONDITION))
                              (AR.FORM.CLEAR (OR FORMSTREAM FORMWINDOW)
                                        T)
                              (AR.FORM.SET.TO.EMPTY FORMWINDOW)
                              T))
             else (LET [(ARNUM (IMAGEOBJPROP (CAR (AR.FIND.BUTTON (OR FORMSTREAM FORMWINDOW)
                                                              'Number%:))
                                   'AR.FIELD.VALUE]
                      [if (NUMBERP NUM/OR/FILE)
                          then (if (NOT (= ARNUM NUM/OR/FILE))
                                   then (CL:ERROR "Retrieved file for ~A# ~D, but file thinks it is ~A"
                                              AR.IDENTIFICATION.STRING NUM/OR/FILE ARNUM))
                               (AR.SET.FORM.NUMBER FORMWINDOW NUM/OR/FILE)
                               (WINDOWPROP FORMWINDOW 'AR.GET/PUT.FILE.NAME NIL)
                          else                                                   ; Set number according to whether the saved ar was numbered.
                               (AR.SET.FORM.NUMBER FORMWINDOW (SETQ ARNUM (FIXP ARNUM]
                      (WINDOWPROP FORMWINDOW 'TITLE (CONCAT "Editing " AR.IDENTIFICATION.STRING " " (OR ARNUM
                                                                                 NUM/OR/FILE))
                               )
                      (AR.PROMPT.PRINT FORMWINDOW T AR.IDENTIFICATION.STRING " " NUM/OR/FILE " retrieved")
                                                                                 ; Return NIL on success
                      NIL))])
```

(AR.FETCH.AND.PARSE.AR
```
  [LAMBDA (NUM/OR/FILE SCRATCH.STREAM INDEX.FIELDS DONTRESET)      ; Edited 21-Jul-88 14:57 by bvm

    ;; Read AR file (or number) into SCRATCH.STREAM and returns its parse (the "scratch map") for each of INDEX.FIELDS, or for all fields if NIL.
    ;; Returns a CONDITION as second value if there was an error.  If DONTRESET is true, then doesn't reset SCRATCH.STREAM, but starts copying
    ;; at its current position.

    (IGNORE-ERRORS (LET ((*UPPER-CASE-FILE-NAMES* NIL)
                          ARSTREAM)                                  ; Open the AR file and read its contents into a scratch stream,
                                                                     ; stored on the window
                     (CL:UNWIND-PROTECT
                         (PROGN                                      ; Open the AR and copy it into the scratch stream
                                 (SETQ ARSTREAM (OPENSTREAM (COND
                                                      ((NUMBERP NUM/OR/FILE)
                                                       (AR.GET.FILENAME NUM/OR/FILE NIL))
                                                      (T NUM/OR/FILE))
                                                   'INPUT
                                                   'OLD))
                                 (OR DONTRESET (SETFILEPTR SCRATCH.STREAM 0))
                                 (AR.COPY.AND.INDEX.AR ARSTREAM SCRATCH.STREAM INDEX.FIELDS))
                       (COND
                         ((AND ARSTREAM (OPENP ARSTREAM))
                          (CLOSEF ARSTREAM))))))])
```

(AR.SET.FORM.NUMBER
```
  [LAMBDA (FORMWINDOW N)                                                         ; Edited  5-Aug-88 16:10 by bvm

    ;; Record N as the number of the AR currently living in FORMWINDOW

    (WINDOWPROP FORMWINDOW 'AR.FORM.NUMBER N)
    [LET [(ICON (WINDOWPROP FORMWINDOW 'ICONWINDOW]                              ; Fix icon label if there is one
        (AND ICON (ICONW.TITLE ICON (if N
                                        then (MKSTRING N)
                                        else ""]                                ; Change the contents of the "Number:" button in the menu
    (LET ((MENUW (AR.GET.MENU.FROM.MAIN.WINDOW FORMWINDOW))
          (BUTTON.NAME 'Number%:)
          BUTTON)
         (if (SETQ BUTTON (AR.FIND.BUTTON MENUW BUTTON.NAME))
             then (if N
                      then (MBUTTON.SET.FIELD (TEXTOBJ MENUW)
                                   'Number%: N)
                      else                                                       ; Bug in MBUTTON.SET.FIELD won't let me replace it with null
                                                                                 ; string
                           (AR.DELETE.FIELD.VAL (CAR BUTTON)
                                   (CDR BUTTON)
                                   MENUW))
             else (ERROR "Can't find named button" BUTTON.NAME])
```

(AR.GET.SCRATCH.STREAM

```
[LAMBDA (WINDOW)                                                          ; Edited 17-Feb-88 15:07 by bvm
```
  ;; Return a nodircore stream, resuing the one on WINDOW if it's there.

```
    (OR (WINDOWPROP WINDOW 'AR.FORM.SCRATCH.STREAM)
        (LET [(S (OPENSTREAM '{NODIRCORE} 'BOTH]
             (WINDOWPROP WINDOW 'AR.FORM.SCRATCH.STREAM S)
             S])
```

(**AR.COPY.AND.INDEX.AR**
```
  [LAMBDA (ARSTREAM SCRATCH.STREAM INDEX.FIELDS)                           ; Edited 15-Feb-88 11:43 by bvm
```
    ;; Read thru an AR file, copying its contents to SCRATCH.STREAM, and building an index of where each field's data appears in the scratch file.
    ;; The index is a list of entries: (Field-Name Starting-Fileptr Length)

```
    (bind INDEX CHAR until (EOFP ARSTREAM)
       do (BLOCK)
          [LET ([FIELD.NAME (PACKC (collect (SETQ CHAR (BIN ARSTREAM)) repeatuntil (EQ CHAR (CHARCODE %:]
                (START (GETFILEPTR SCRATCH.STREAM)))
```
               ;; FIELD.NAME contains the name of the next field, e.g. "Subject:" -- yes, including the colon.
```
               (BIN ARSTREAM)                                             ; skip extra space after ':'
               (COND
                  [(OR (NLISTP INDEX.FIELDS)
                       (MEMB FIELD.NAME INDEX.FIELDS))                     ; Only gather fields that the caller asked about.
                    (do   ;; Copy the field's CONTENTS to the scratch file -- everything up to the next CR.

                       (BOUT SCRATCH.STREAM (SELCHARQ (SETQ CHAR (BIN ARSTREAM))
                                             (%'                          ; ' is used to escape special characters.
                                                 (BIN ARSTREAM))
                                             (CR                          ; There best be TWO CR's at the end of the field
                                                 (RETURN (OR (EQ (BIN ARSTREAM)
                                                                 (CHARCODE CR))
                                                             (AR.MALFORMED.AR ARSTREAM))))
                                             CHAR)))
                       ;; INDEX is a list of entries like (FieldName StartingLoc Length) for each field.

                       (push INDEX (LIST FIELD.NAME START (- (GETFILEPTR SCRATCH.STREAM)
                                                             START]
                   (T                                                     ; Otherwise, skip over this field -- it's of no interest.
                     (do (SELCHARQ (SETQ CHAR (BIN ARSTREAM))
                             (%' (BLOCK)
                                 (BIN ARSTREAM))
                             (CR (RETURN (OR (EQ (BIN ARSTREAM)
                                                 (CHARCODE CR))
                                             (AR.MALFORMED.AR ARSTREAM))))
                             CHAR]
       finally (\SETEOFPTR SCRATCH.STREAM (GETFILEPTR SCRATCH.STREAM))
               (RETURN INDEX])
```

(**AR.MALFORMED.AR**
```
  [LAMBDA (ARSTREAM)                                                      ; Edited 15-Feb-88 11:42 by bvm
    (CL:ERROR "Malformed AR file"])
```

(**AR.TEXTSTREAM.LOAD**
```
  [LAMBDA (FORMWINDOW FORMSTREAM)                                         ; Edited 22-Feb-88 16:46 by bvm
```
    ;; Load the ar whose map is in FORMWINDOW into FORMSTREAM, which defaults to the textstream in the window.

```
    [COND
       ((NOT FORMSTREAM)                                                  ; Take stream from window, and clear its old contents first
         (AR.FORM.CLEAR (SETQ FORMSTREAM (WINDOWPROP FORMWINDOW 'TEXTSTREAM]
    (PROG ((TOBJ (TEXTOBJ FORMSTREAM))
           (SCRATCH.STREAM (WINDOWPROP FORMWINDOW 'AR.FORM.SCRATCH.STREAM))
           (SCRATCH.MAP (WINDOWPROP FORMWINDOW 'AR.FORM.SCRATCH.MAP))
           (CH# 0)
           FIELD.LEN OBJ BUTTON PROTECT.FIELD.FLG FIELD.CH# SEL SCRATCH.MAP.SPEC SCRATCH.PTR)
          [while (SETQ BUTTON (MBUTTON.FIND.NEXT.BUTTON TOBJ (add CH# 1)))
             do   ;; Run thru the buttons in the AR form, filling in data for each one.

                (BLOCK)
                (SETQ OBJ (CAR BUTTON))
                (SETQ CH# (CDR BUTTON))
                (SETQ PROTECT.FIELD.FLG (IMAGEOBJPROP OBJ 'AR.PROTECTED.FLG))
                (COND
                   (PROTECT.FIELD.FLG (SETQ FIELD.CH# (+ (IMAGEOBJPROP OBJ 'AR.FIELD.START)
                                                         CH#)))
                   ((SETQ SEL (MBUTTON.FIND.NEXT.FIELD TOBJ CH#))
                    (SETQ FIELD.CH# (fetch (SELECTION CH#) of SEL)))
                   (T (HELP "Can't find field for button")))
                (SETFILEPTR FORMSTREAM (SUB1 FIELD.CH#))
                (SETQ SCRATCH.MAP.SPEC (ASSOC (IMAGEOBJPROP OBJ 'MBTEXT)
                                              SCRATCH.MAP))
                (COND
                   ((NULL SCRATCH.MAP.SPEC)                                ; Perhaps a new field has been added to AREdit, but this is an
                                                                          ; old ar.
                     (PRINTOUT PROMPTWINDOW T "AR has no " (IMAGEOBJPROP OBJ 'MBTEXT)
```

```
                                  " field")
                            (IMAGEOBJPROP OBJ 'AR.FIELD.VALUE NIL))
                        (T                                              ; Copy the field's contents from the scratch file into the form.
                                                                        ; Map entry is (field pointer length)
                            (SETQ FIELD.LEN (CADDR SCRATCH.MAP.SPEC))
                            (COND
                               ((> FIELD.LEN 0)
                                (TEDIT.FAST.RAW.INCLUDE FORMSTREAM SCRATCH.STREAM (SETQ SCRATCH.PTR (CADR
                                                                                                     SCRATCH.MAP.SPEC
                                                                                                     ))
                                   (+ SCRATCH.PTR FIELD.LEN)
                                   FIELD.CH#)                           ; And protect the contents from tampering if protected
                                (TEDIT.LOOKS FORMSTREAM [COND
                                                          (PROTECT.FIELD.FLG '(PROTECTED ON))
                                                          (T '(PROTECTED OFF]
                                   FIELD.CH# FIELD.LEN)))
                            (COND
                               (PROTECT.FIELD.FLG                       ; Mostly menu buttons
                                (IMAGEOBJPROP OBJ 'AR.FIELD.LEN FIELD.LEN)
                                (if (OR (EQ (CAR SCRATCH.MAP.SPEC)
                                            'Number%:)
                                        (SELECTQ PROTECT.FIELD.FLG
                                           ((MENU SUBMENU)
                                              T)
                                           NIL))
                                    then                                ; These guys want to know the symbolic value stored in the field
                                         (IMAGEOBJPROP OBJ 'AR.FIELD.VALUE
                                             (if (> FIELD.LEN 0)
                                                 then (PACKC (AR.READ.BYTES SCRATCH.STREAM FIELD.LEN
                                                                    SCRATCH.PTR))
                                                 else AR.NULL.BUTTON.VALUE]
            (AR.RESET.SEL FORMSTREAM)
            (TEDIT.STREAMCHANGEDP FORMSTREAM T])
```

(**AR.REPLACE.FILL.INS**
```
  [LAMBDA (STREAM.OR.WINDOW FILL.INS)                                   ; Edited 12-Feb-88 18:42 by bvm
    (for X in FILL.INS bind (FORMSTREAM _ (TEXTSTREAM STREAM.OR.WINDOW))
                            BUTTON
      do (BLOCK)
         (if (SETQ BUTTON (AR.FIND.BUTTON FORMSTREAM (CAR X)))
             then (AR.REPLACE.FIELD.VAL (CAR BUTTON)
                       (CDR BUTTON)
                       FORMSTREAM
                       (CADR X))
```

)

;; PUT

(DEFINEQ

(**AR.MENU.FN.PUT**
```
  [LAMBDA (FORMWINDOW)                                                  ; Edited  4-Aug-88 12:35 by bvm
    (PROG ((*PRINT-BASE* 10)
            FILE CHECK.VALUE EDIT.CHANGES.LIST EDIT.CHANGES.STRING EDIT.CHANGES.TEXT CURR.NUM DT OPERATION USER)
        (if (AND (NOT (TEDIT.STREAMCHANGEDP FORMWINDOW))
                 (NULL (WINDOWPROP FORMWINDOW 'AR.GET/PUT.FILE.NAME))
                 (NOT (AR.CONFIRM "Form has NOT been changed  --- confirm PUT" FORMWINDOW)))
            then (AR.PROMPT.PRINT FORMWINDOW T "Put aborted")
                 (RETURN))
        [SETQ EDIT.CHANGES.STRING (CONCAT (SETQ USER (AR.USERNAME))
                                      " "
                                      (SETQ DT (DATE]
        (if (SETQ CURR.NUM (WINDOWPROP FORMWINDOW 'AR.FORM.NUMBER))
            then (SETQ OPERATION 'EDIT)                                 ; Editing an existing AR
                 (SETQ EDIT.CHANGES.LIST (AR.FIND.EDIT.CHANGES FORMWINDOW))
                                                                        ; A list of (field x), where x is either an old/new value pair, or the
                                                                        ; original length of the field (now smashed).
                 (LET ((TSTREAM (TEXTSTREAM FORMWINDOW))
                       (BUTTON (AR.FIND.BUTTON FORMWINDOW 'Disposition%:))
                       INSERTION DISPLEN)                               ; BUTTON = (obj . ch#)
                     [SETQ EDIT.CHANGES.STRING
                       (CONCATLIST (CONS EDIT.CHANGES.STRING
                                         (for X in EDIT.CHANGES.LIST
                                            join (LIST* " " (CAR X)
                                                     (if (FIXP (CADR X))
                                                         then (push EDIT.CHANGES.TEXT X)
                                                              NIL
                                                         else ; Parenthetically, the old and new values
                                                              (LIST (CADR X]
                     (TEDIT.INSERT TSTREAM (SETQ INSERTION (CONCAT "
                                                                  [" EDIT.CHANGES.STRING "]"))
                         [+ (CDR BUTTON)
                            (IMAGEOBJPROP (CAR BUTTON)
                                  'AR.FIELD.START)
                            (SETQ DISPLEN (IMAGEOBJPROP (CAR BUTTON)
```

```
                                                        'AR.FIELD.LEN]
                                    '(PROTECTED ON)
                                    T)
                                (IMAGEOBJPROP (CAR BUTTON)
                                    'AR.FIELD.LEN
                                    (+ DISPLEN (NCHARS INSERTION))))
                            (AR.NOTE.FIELD.CHANGED FORMWINDOW BUTTON))
                    [AR.REPLACE.FILL.INS FORMWINDOW '((Edit-By%: ,USER)
                                                      (Edit-Date%: ,DT]
                        (AR.NOTE.FIELD.CHANGED FORMWINDOW (AR.FIND.BUTTON FORMWINDOW 'Edit-By%:))
                        (AR.NOTE.FIELD.CHANGED FORMWINDOW (AR.FIND.BUTTON FORMWINDOW 'Edit-Date%:))
            else (SETQ OPERATION 'SUBMIT)
                 (AR.PROMPT.PRINT FORMWINDOW T "Getting Submit number...")
                 (if (NULL (SETQ CURR.NUM (AR.GET.SUBMIT.NUM FORMWINDOW)))
                     then (AR.PUT.FAILED "Can't get AR submit number --- Put Aborted --- Try again" FORMWINDOW)
                          (RETURN))
                 (AR.PROMPT.PRINT FORMWINDOW " = " CURR.NUM)
                 [AR.REPLACE.FILL.INS FORMWINDOW '((Number%: ,CURR.NUM)
                                                   (Date%: ,DT]       ; make sure that no one tries accessing the scratch stream
                 (WINDOWPROP FORMWINDOW 'AR.FORM.SCRATCH.MAP NIL))
        (if (SETQ CHECK.VALUE (AR.CHECK.FIELDS FORMWINDOW))
            then (AR.PUT.FAILED (CONCAT "Bad bug report form: " CHECK.VALUE " --- Put Aborted")
                        FORMWINDOW)
                 (RETURN))
        (if (NULL (NLSETQ (AR.UPDATE.AR.INFO FORMWINDOW OPERATION CURR.NUM EDIT.CHANGES.STRING)))
            then (AR.PUT.FAILED "Cannot update TDS file --- Put aborted -- try again" FORMWINDOW)
                 (RETURN))
        (CLEARW FORMWINDOW)
        (AR.PROMPT.PRINT FORMWINDOW T (SELECTQ OPERATION
                                           (SUBMIT "Submitting ")
                                           "Saving ")
               AR.IDENTIFICATION.STRING " " CURR.NUM " ...")
        (if (PROG1 (AR.FORM.SAVE FORMWINDOW CURR.NUM)
                   (TEDIT.STREAMCHANGEDP FORMWINDOW T))
            then (AR.SET.FORM.NUMBER FORMWINDOW CURR.NUM)
                 (WINDOWPROP FORMWINDOW 'TITLE (CONCAT "Saved " AR.IDENTIFICATION.STRING " " CURR.NUM))
                 (if (EQ OPERATION 'EDIT)
                     then (AR.SEND.MESSAGE FORMWINDOW 'EDIT CURR.NUM EDIT.CHANGES.STRING EDIT.CHANGES.TEXT)
                     else (AR.SEND.MESSAGE FORMWINDOW 'SUBMIT CURR.NUM))
            else (AR.PUT.FAILED "Unknown bug -- AR not saved -- try again" FORMWINDOW])
```

(**AR.MENU.FN.PUT&GET**
```
  [LAMBDA (FORMWINDOW)                                              ; Edited  5-Aug-88 15:56 by bvm
    (LET ((NUM (AR.READ.NUMBER)))
         (AR.MENU.FN.PUT FORMWINDOW)
         (AR.MENU.FN.GET FORMWINDOW NUM])
```

(**AR.MENU.FN.PUT&GETNEXT**
```
  [LAMBDA (FORMWINDOW)                                              ; Edited  5-Aug-88 15:57 by bvm
    (AR.MENU.FN.PUT FORMWINDOW)
    (AR.GET.NEXT FORMWINDOW])
```

(**AR.FORM.SAVE**
```
  [LAMBDA (FORMWINDOW FILENAME)                                     ; Edited 20-Jul-88 17:09 by bvm

    ;; Save the contents of an AR window into an AR file.

    (RESETLST
        (PROG ((*UPPER-CASE-FILE-NAMES* NIL)
               (FORMSTREAM (TEXTSTREAM FORMWINDOW))
               (TOBJ (TEXTOBJ FORMWINDOW))
               (CH# 0)
               BUTTON OUTSTREAM BUTTON.OBJ FIELD.START FIELD.LEN SEL TOBJ NUM)
              (if (FIXP FILENAME)
                  then (SETQ NUM FILENAME)
                       (SETQ FILENAME (AR.GET.FILENAME FILENAME T)))
              [RESETSAVE NIL (LIST [FUNCTION (LAMBDA (OUTSTREAM)
                                                 (COND
                                                     (RESETSTATE        ; Cleanup after faulty put
                                                         (COND
                                                             ((OPENP OUTSTREAM)
                                                              (CLOSEF OUTSTREAM)))
                                                         (DELFILE (FULLNAME OUTSTREAM))
                                                         (AR.PROMPT.PRINT FORMWINDOW T "SAVE ERROR - bad bug
                                                                 report file " (FULLNAME OUTSTREAM)
                                                                 " deleted"]
                                            (SETQ OUTSTREAM (OPENSTREAM FILENAME 'OUTPUT 'NEW]
              (if (NOT NUM)
                  then (AR.PROMPT.PRINT FORMWINDOW T "Writing " (FULLNAME OUTSTREAM)
                              " ..."))
              (LINELENGTH MAX.SMALLP OUTSTREAM)                      ; Don't get spurious CR's in output
          LP  (BLOCK)
              [COND
                  ([NULL (SETQ BUTTON (MBUTTON.FIND.NEXT.BUTTON TOBJ (add CH# 1]
                   (AR.PROMPT.PRINT FORMWINDOW " done")
```

```
                          (RETURN (CLOSEF OUTSTREAM]
                    (SETQ CH# (CDR BUTTON))
                    (SETQ BUTTON.OBJ (CAR BUTTON))
                    (PRIN3 (IMAGEOBJPROP BUTTON.OBJ 'MBTEXT)            ; Print out the name of the field
                           OUTSTREAM)                                   ; Because the ARFile->WIndow code does its own char-by-char
                                                                        ; reading, we DON'T want a readtable-driven print here.
                    (BOUT OUTSTREAM (CHARCODE SPACE))
                    [COND
                       [(IMAGEOBJPROP BUTTON.OBJ 'AR.PROTECTED.FLG)
                        (SETQ FIELD.START (+ (IMAGEOBJPROP BUTTON.OBJ 'AR.FIELD.START)
                                             CH#))
                        (SETQ FIELD.LEN (IMAGEOBJPROP BUTTON.OBJ 'AR.FIELD.LEN]
                       (T (SETQ SEL (MBUTTON.FIND.NEXT.FIELD TOBJ CH#))
                          (SETQ FIELD.START (fetch (SELECTION CH#) of SEL))
                          (SETQ FIELD.LEN (fetch (SELECTION DCH) of SEL]
                    (SETFILEPTR FORMSTREAM (SUB1 FIELD.START))
                    [for X from 1 to FIELD.LEN bind C WARNED do (SETQ C (BIN FORMSTREAM))
                                                                (COND
                                                                   ((NOT (FIXP C))
                                                                    (if [NEQ WARNED (SETQ WARNED (IMAGEOBJPROP
                                                                                                      BUTTON.OBJ
                                                                                                      'MBTEXT]
                                                                        then (AR.PROMPT.PRINT FORMWINDOW " [Image
                                                                                 object(s) in " WARNED " field
                                                                                 discarded.]")))
                                                                   ((> C \MAXTHINCHAR)
                                                                     ; Format doesn't accommodate NS chars yet
                                                                    (if [NEQ WARNED (SETQ WARNED (IMAGEOBJPROP
                                                                                                      BUTTON.OBJ
                                                                                                      'MBTEXT]
                                                                        then (AR.PROMPT.PRINT FORMWINDOW " [NS chars in
" WARNED " field discarded.]"))
                                                                    (BOUT OUTSTREAM (CHARCODE *)))
                                                                   ((FMEMB C (CHARCODE (CR %: "'")))
                                                                    (BLOCK)
                                                                    (BOUT OUTSTREAM (CHARCODE "'"))
                                                                    (BOUT OUTSTREAM C))
                                                                   (T (BOUT OUTSTREAM C]
                    (TERPRI OUTSTREAM)
                    (TERPRI OUTSTREAM)
                    (GO LP)))])
```

(**AR.GET.SUBMIT.NUM**
```
  [LAMBDA (FORMWINDOW DONTINCREMENT)                                    ; Edited 20-Jul-88 16:39 by bvm

    ;; Obtains and increments (unless DONTINCREMENT true) the number of the next ar to be submitted.  Returns NIL on various failures.

    (from 1 to AR.FILE.TRIES bind SUBMIT.NUM.FILE VAL CURR.NEXT.NUM CONDITION *UPPER-CASE-FILE-NAMES*
       do [CL:MULTIPLE-VALUE-SETQ (SUBMIT.NUM.FILE CONDITION)
              (IGNORE-ERRORS (OPENSTREAM AR.SUBMIT.NUM.FILE.NAME 'BOTH 'OLD '((DON'T.CACHE T)
                                                                              (DON'TCACHE T]
          [if SUBMIT.NUM.FILE
              then                                                      ; Got the file.  Read the number therein and run away
                   [SETQ VAL (NLSETQ (PROGN (SETFILEPTR SUBMIT.NUM.FILE 0)
                                            (SETQ CURR.NEXT.NUM (READ SUBMIT.NUM.FILE FILERDTBL))
                                            (if (NOT (FIXP CURR.NEXT.NUM))
                                                then (ERROR!))
                                            (if (NOT DONTINCREMENT)
                                                then (SETFILEPTR SUBMIT.NUM.FILE 0)
                                                     (PRINT (ADD1 CURR.NEXT.NUM)
                                                            SUBMIT.NUM.FILE FILERDTBL]
                   (CLOSEF SUBMIT.NUM.FILE)
                   (RETURN (AND VAL CURR.NEXT.NUM))
              else (CL:TYPECASE CONDITION
                       (XCL:FILE-NOT-FOUND                              ; Doesn't even exist?
                          (AR.PROMPT.PRINT FORMWINDOW T "Can't find submit number file " AR.SUBMIT.NUM.FILE.NAME)
                          (RETURN NIL))
                       (T (AR.PROMPT.PRINT FORMWINDOW T (CL:FORMAT NIL "~A" CONDITION)
                              " --- please wait")
                          (DISMISS 5000)))]
       finally (AR.PROMPT.PRINT FORMWINDOW T "Gave up trying to open submit number file--try again later"])
```

(**AR.FIND.EDIT.CHANGES**
```
  [LAMBDA (FORMWINDOW)                                                  ; Edited 16-Feb-88 12:33 by bvm

    ;; Find everything that's changed between the original ar and what's currently there, by comparing the tedit stream with the scratch file.

    (PROG ((SCRATCH.STREAM (WINDOWPROP FORMWINDOW 'AR.FORM.SCRATCH.STREAM))
           (SCRATCH.MAP (WINDOWPROP FORMWINDOW 'AR.FORM.SCRATCH.MAP))
           (FORMSTREAM (WINDOWPROP FORMWINDOW 'TEXTSTREAM))
           (CH# 0)
           SECOND.SCRATCH OBJ BUTTON BUTTON.NAME FIELD.CH# FIELD.LEN TOBJ SCRATCH.MAP.SPEC ORIGSTREAM ORIGPTR
           ORIGLEN EDIT.CHANGES PROTECTEDFLG SEL)
          (if (NULL SCRATCH.MAP)
              then (RETURN NIL))
          (SETQ TOBJ (TEXTOBJ FORMSTREAM))
```

```
          [while (SETQ BUTTON (MBUTTON.FIND.NEXT.BUTTON TOBJ (add CH# 1)))
             do (BLOCK)
                (SETQ OBJ (CAR BUTTON))
                (SETQ CH# (CDR BUTTON))
                (SETQ BUTTON.NAME (IMAGEOBJPROP OBJ 'MBTEXT))
                (if (SETQ SCRATCH.MAP.SPEC (ASSOC BUTTON.NAME SCRATCH.MAP))
                    then (SETQ ORIGPTR (CADR SCRATCH.MAP.SPEC))
                         (SETQ ORIGLEN (CADDR SCRATCH.MAP.SPEC))
                         [SETQ ORIGSTREAM (if (NULL (CDDDR SCRATCH.MAP.SPEC))
                                              then SCRATCH.STREAM
                                              else (OR SECOND.SCRATCH (WINDOWPROP FORMWINDOW
                                                                        'AR.FORM.SCRATCH.STREAM2]
                    else                                         ; note that you default to a zero-length field if it is not specified in
                                                                 ; the file
                         (SETQ ORIGPTR (SETQ ORIGLEN 0))
                         (SETQ ORIGSTREAM SCRATCH.STREAM))
                (if (SETQ PROTECTEDFLG (IMAGEOBJPROP OBJ 'AR.PROTECTED.FLG))
                    then (SETQ FIELD.CH# (+ (IMAGEOBJPROP OBJ 'AR.FIELD.START)
                                            CH#))
                         (SETQ FIELD.LEN (IMAGEOBJPROP OBJ 'AR.FIELD.LEN))
                  elseif (SETQ SEL (MBUTTON.FIND.NEXT.FIELD TOBJ CH#))
                    then (SETQ FIELD.CH# (fetch (SELECTION CH#) of SEL))
                         (SETQ FIELD.LEN (fetch (SELECTION DCH) of SEL))
                    else (SHOULDNT "Can't find field for button"))
                (if (OR (NOT (= FIELD.LEN ORIGLEN))
                        (AND (NEQ FIELD.LEN 0)
                             (AR.PIECE.CHANGED TOBJ FORMSTREAM FIELD.CH# ORIGSTREAM ORIGPTR ORIGLEN)))
                    then                                         ; we know that the current value of the field is not equal to the
                                                                 ; value when loaded
                         (push EDIT.CHANGES (LIST BUTTON.NAME
                                                  (if [OR (EQ BUTTON.NAME 'Attn%:)
                                                          (MEMB PROTECTEDFLG '(MENU SUBMENU]
                                                      then           ; Note the old and new values
                                                           [CONCATCODES (CONS (CHARCODE "(")
                                                                              (NCONC (AR.READ.BYTES ORIGSTREAM
                                                                                        ORIGLEN ORIGPTR)
                                                                                     (APPEND (CHARCODE
                                                                                              (- >)))
                                                                                     (AR.READ.BYTES FORMSTREAM
                                                                                        FIELD.LEN
                                                                                        (SUB1 FIELD.CH#))
                                                                                     (CHARCODE ")"]
                                                      else           ; Just note the old length, so we can retrieve what's new (maybe)
                                                           ORIGLEN)))
                         (if (< FIELD.LEN (UNFOLD BYTESPERPAGE 2))
                             then                                          ; Note the field's new contents for next time around.  Don't bother
                                                                           ; for long fields, since that can be expensive.
                                  (AR.NOTE.FIELD.CHANGED FORMWINDOW BUTTON FIELD.CH# FIELD.LEN]
          (RETURN (DREVERSE EDIT.CHANGES)])
```

(**AR.NOTE.FIELD.CHANGED**

```
  [LAMBDA (FORMWINDOW BUTTON FIELD.CH# FIELD.LEN)                    ; Edited 22-Feb-88 15:46 by bvm

    ;; Updates FORMWINDOW's "original" AR scratch stream with the contents of the new field, so that if we put again, we don't get the field looking
    ;; changed twice.  If FIELD.CH# is NIL, we'll compute it from the button, which must be an unprotected button.

    (PROG ((SCRATCH.STREAM (WINDOWPROP FORMWINDOW 'AR.FORM.SCRATCH.STREAM2))
           (SCRATCH.MAP (WINDOWPROP FORMWINDOW 'AR.FORM.SCRATCH.MAP))
           (FORMSTREAM (WINDOWPROP FORMWINDOW 'TEXTSTREAM))
           (OBJ (CAR BUTTON))
           SEL)
          (if (NULL SCRATCH.MAP)
              then                                              ; New AR without map, nothing interesting to do.
                   (RETURN))
          [if (NOT SCRATCH.STREAM)
              then                                              ; Need secondary scratch stream, because the primary scratch
                                                                ; stream is being used to back the TEdit stream--the
                                                                ; COPYBYTES below would have real trouble.
                   (WINDOWPROP FORMWINDOW 'AR.FORM.SCRATCH.STREAM2 (SETQ SCRATCH.STREAM (OPENSTREAM
                                                                                           '{NODIRCORE}
                                                                                           'BOTH]
          [if (NOT FIELD.CH#)
              then (if (IMAGEOBJPROP OBJ 'AR.PROTECTED.FLG)
                       then (SETQ FIELD.CH# (IPLUS (IMAGEOBJPROP OBJ 'AR.FIELD.START)
                                                   (CDR BUTTON)))
                            (SETQ FIELD.LEN (IMAGEOBJPROP OBJ 'AR.FIELD.LEN))
                       else (SETQ SEL (MBUTTON.FIND.NEXT.FIELD (TEXTOBJ FORMSTREAM)
                                         (CDR BUTTON)))
                            (SETQ FIELD.CH# (fetch (SELECTION CH#) of SEL))
                            (SETQ FIELD.LEN (fetch (SELECTION DCH) of SEL]
          (SETFILEPTR SCRATCH.STREAM -1)
          (NLSETQ                                               ; Wrap in NLSETQ in case the COPYBYTES complains about
                                                                ; non-ascii in the text stream
                  (PUTASSOC (IMAGEOBJPROP OBJ 'MBTEXT)
                            (PROG1 (LIST* (GETFILEPTR SCRATCH.STREAM)
                                          FIELD.LEN T)
                                   (SETFILEPTR FORMSTREAM (SUB1 FIELD.CH#))
```

```
                                    (COPYBYTES FORMSTREAM SCRATCH.STREAM FIELD.LEN))
                          SCRATCH.MAP])
```

(**AR.SEND.MESSAGE**
```
  [LAMBDA (FORMWINDOW OPERATION NUM EDIT.CHANGES.STRING EDIT.CHANGES.TEXT)
```
                                                                  ; Edited 5-Aug-88 17:57 by bvm

   ;; Send a message describing what just got done to this AR.

```
     (PROG ((FORMSTREAM (TEXTSTREAM FORMWINDOW))
             RECIPIENTS TXT SUBM TEM)
           (COND
              (AR.NO.MESSAGE.FLG (RETURN))
              ((OR (NOT (GETD 'LAFITEMODE))
                   (NOT (LAFITEMODE)))
                (PROMPTPRINT "Can't send AR message -- LAFITE not turned on")
                (RETURN)))
           (SETQ SUBM (AR.GET.BUTTON.FIELD.AS.TEXT FORMSTREAM 'Submitter%:))
           (SETQ RECIPIENTS (AR.GET.BUTTON.FIELD.AS.TEXT FORMSTREAM 'Attn%:))
           [COND
              ((EQUAL RECIPIENTS "")
                (SETQ RECIPIENTS (if (OR (NEQ OPERATION 'EDIT)
                                         (EQUAL SUBM ""))
                                     then ">>Recipients<<"
                                     else (PROG1 SUBM (SETQ SUBM ""]
           (SETQ TXT (OPENSTREAM '{NODIRCORE} 'BOTH))       ; Make scratch core file--faster than starting with TEdit.
           (LINELENGTH MAX.SMALLP TXT)
           (LET ((*PRINT-BASE* 10))
               (printout TXT "Subject: " (COND
                                            ((EQ OPERATION 'SUBMIT)
                                             "Submitt")
                                            (T "Edit"))
                   "ed " AR.IDENTIFICATION.STRING " " (OR NUM "<unknown number>"))))
           (printout TXT ": ")
           (AR.COPY.BUTTON.FIELD FORMSTREAM TXT 'Subject%:)
           (printout TXT T "To: " RECIPIENTS T)
           (COND
              ((AND (EQ OPERATION 'EDIT)
                    (NOT (EQUAL SUBM "")))                   ; CC the submitter on edits.
                (PRINTOUT TXT "cc: " SUBM T)))
           (TERPRI TXT)
           [COND
              ((EQ OPERATION 'SUBMIT)                        ; Display the ars description, plus any other interesting fields
                (AR.COPY.BUTTON.FIELD FORMSTREAM TXT 'Description%:)
                (TERPRI TXT)
                (for FIELD in AR.INTERESTING.SUBMIT.FIELDS do (AR.COPY.BUTTON.FIELD FORMSTREAM TXT FIELD T)))
              (T (printout TXT "[" EDIT.CHANGES.STRING "]" T)
                 (if EDIT.CHANGES.TEXT
                     then ;; Some text fields changed, might be nice to show them here.  EDIT.CHANGES.TEXT is a list of (field oldlength)

                          (if (SETQ TEM (ASSOC 'Description%: EDIT.CHANGES.TEXT))
                              then                           ; Show appended description
                                   (TERPRI TXT)
                                   (AR.COPY.BUTTON.FIELD FORMSTREAM TXT 'Description%: NIL (CADR TEM))
                                   (TERPRI TXT))
                          (for PAIR in EDIT.CHANGES.TEXT when (AND (EQ (CADR PAIR)
                                                                       0)
                                                                  (NEQ (CAR PAIR)
                                                                       'Description%:))
                             do                              ; Display any brand new fields
                                (AR.COPY.BUTTON.FIELD FORMSTREAM TXT (CAR PAIR)
                                      T]
           (TERPRI TXT)
           (ADD.PROCESS `(,(FUNCTION \SENDMESSAGE)
                          ,(OPENTEXTSTREAM TXT NIL NIL NIL (LIST 'FONT LAFITEEDITORFONT))
                          '(LEAVETTY T))
              'NAME
              'MESSAGESENDER])
```


(**AR.COPY.BUTTON.FIELD**
```
  [LAMBDA (FORMSTREAM OUTSTREAM BUTTON.NAME LABEL START)          ; Edited 23-Feb-88 12:30 by bvm
```
   ;; Copy the contents of the named field from FORMSTREAM to OUTSTREAM, starting at offset START (default zero). If LABEL is true, starts a
   ;; new line and prints the button name in front of the text.

```
     (DESTRUCTURING-BIND (CH# . LEN)
            (AR.GET.BUTTON.FIELD.SHAPE FORMSTREAM BUTTON.NAME)
         (if START
             then (add CH# START)
                  (SETQ LEN (- LEN START)))
         (if (> LEN 0)
             then (SETFILEPTR FORMSTREAM (SUB1 CH#))
                  [if LABEL
                      then (PRINTOUT OUTSTREAM T BUTTON.NAME "  ")
                      else                                    ; Let's filter leading cr's
                           (bind CH while (PROGN (SETQ LEN (SUB1 LEN))
                                                 (EQ (SETQ CH (BIN FORMSTREAM))
```

```
                                                               (CHARCODE CR)))
                              do  (if  (<= LEN 0)
                                     then                                             ; Field entirely cr's!
                                           (RETURN))
                          finally  (if  (FIXP CH)
                                       then  (\OUTCHAR OUTSTREAM CH]
                    (to LEN bind CH when (FIXP (SETQ CH (BIN FORMSTREAM))) do
                                                                       ; Filter out image objects
                                                                (\OUTCHAR OUTSTREAM CH))
              (if LABEL
                 then  (TERPRI OUTSTREAM))                            ; Return T to show success
             T])
```

(**AR.UPDATE.AR.INFO**
```
  [LAMBDA (FORMWINDOW OP AR.INFO USER.INFO)                         ; Edited 22-Feb-88 15:44 by bvm

    ;; Write into the TDS file a description of what happened to this AR.

    (AR.PROMPT.PRINT FORMWINDOW T "Updating TDS file...")
    (from 1 to AR.FILE.TRIES bind INFO.FILE CONDITION MSG *UPPER-CASE-FILE-NAMES*
       do [CL:MULTIPLE-VALUE-SETQ (INFO.FILE CONDITION)
                 (IGNORE-ERRORS (OPENSTREAM AR.INFO.FILE.NAME 'BOTH 'OLD/NEW '((DON'T.CACHE T)
                                                                              (DON'TCACHE T]
          (if INFO.FILE
             then  (SETFILEPTR INFO.FILE -1)
                   (CL:UNWIND-PROTECT
                       (LET ((*PRINT-BASE* 10))
                            (LINELENGTH MAX.SMALLP INFO.FILE)
                            (printout INFO.FILE "  -- " (LIST OP AR.INFO USER.INFO)
                                   T))
                       (CLOSEF INFO.FILE))
                   (AR.PROMPT.PRINT FORMWINDOW " done")
                   (RETURN)
           else  (if [NOT (STRING-EQUAL MSG (SETQ MSG (CL:FORMAT NIL "~A" CONDITION]
                    then  (AR.PROMPT.PRINT FORMWINDOW T MSG " --- please wait"))
                 (DISMISS 5000))
       finally  (AR.PROMPT.PRINT FORMWINDOW T "Gave up trying to open info file--try again later")
                (ERROR!])
```

(**AR.PUT.FAILED**
```
  [LAMBDA (MSG FORMWINDOW)                                          ; Edited 18-Feb-88 11:12 by bvm
    (RINGBELLS)
    (FLASHWINDOW FORMWINDOW 1)
    (AR.PROMPT.PRINT FORMWINDOW T MSG)
    (WINDOWPROP FORMWINDOW 'TITLE (MKSTRING MSG])
```

```
)

(DEFINEQ
```

(**AR.CHECK.FIELDS**
```
  [LAMBDA (FORMWINDOW)                                              ; Edited 12-Feb-88 18:38 by bvm

    ;; Check that the AR is well-formed.  Return an error message if there is a problem.

    (AR.MAP.BUTTONS FORMWINDOW (FUNCTION (LAMBDA (TOBJ OBJ CH#)
                                    (LET (FN CHECK.VALUE SEL FIELD.CH# FIELD.LEN)
                                       (if (AND (SETQ FN (IMAGEOBJPROP OBJ 'AR.CHECK.FN))
                                                (NEQ FN (FUNCTION NILL)))
                                          then  (if (IMAGEOBJPROP OBJ 'AR.PROTECTED.FLG)
                                                   then  (SETQ FIELD.CH# (IPLUS (IMAGEOBJPROP
                                                                                  OBJ
                                                                                  'AR.FIELD.START)
                                                                                CH#))
                                                         (SETQ FIELD.LEN (IMAGEOBJPROP OBJ
                                                                                 'AR.FIELD.LEN))
                                                 else  (SETQ SEL (MBUTTON.FIND.NEXT.FIELD TOBJ CH#))
                                                       (SETQ FIELD.CH# (fetch (SELECTION CH#)
                                                                           of SEL))
                                                       (SETQ FIELD.LEN (fetch (SELECTION DCH)
                                                                           of SEL)))
                                                (AND (SETQ CHECK.VALUE
                                                        (CL:FUNCALL FN FORMWINDOW OBJ CH# FIELD.CH#
                                                              FIELD.LEN))
                                                     (APPEND (LIST "Bad value for field ["
                                                             (IMAGEOBJPROP OBJ 'MBTEXT)
                                                             "] --- ")
                                                          CHECK.VALUE])
```

(**AR.CHECK.MENU**
```
  [LAMBDA (FORMWINDOW OBJ CH# FIELD.CH# FIELD.LEN)                  ; Edited 12-Feb-88 11:58 by bvm
    (LET ((CLIST (AR.READ.BYTES (TEXTSTREAM FORMWINDOW)
                        FIELD.LEN
                        (SUB1 FIELD.CH#)))
          VAL)
        (if (NULL CLIST)
```

```
                    then                                                    ; a null menu value is always correct
                          NIL
                  elseif (MEMB (SETQ VAL (PACKC CLIST))
                               (IMAGEOBJPROP OBJ 'AR.MENU.LIST))
                    then NIL
                  else (IMAGEOBJPROP OBJ 'AR.MENU NIL)
                       (LIST "bad menu value: " VAL " --- please reset"])
```

(**AR.CHECK.SHORTSTRING**
```
   [LAMBDA (FORMWINDOW OBJ CH# FIELD.CH# FIELD.LEN)                    (* edited%: "27-Jul-84 10:51")
     (if (ILEQ FIELD.LEN (IMAGEOBJPROP OBJ 'AR.MAX.LEN))
         then NIL
       else (LIST "max length= " (IMAGEOBJPROP OBJ 'AR.MAX.LEN)
                  "; current length= " FIELD.LEN])
```

(**AR.CHECK.SUBMENU**
```
   [LAMBDA (FORMWINDOW OBJ CH# FIELD.CH# FIELD.LEN)                    ; Edited 12-Feb-88 12:07 by bvm
```

;; Check that a submenu value is correct for the value given in the main menu.

```
     (LET ((CLIST (AR.READ.BYTES (TEXTSTREAM FORMWINDOW)
                        FIELD.LEN
                        (SUB1 FIELD.CH#)))
           VAL)
          (IMAGEOBJPROP OBJ 'AR.ASSOCIATED.MENU.VAL NIL)            ; ??
          (if (NULL CLIST)
              then                                                  ; a null menu value is always correct
                    NIL
            elseif (MEMB (SETQ VAL (PACKC CLIST))
                         (LISTGET (IMAGEOBJPROP OBJ 'AR.SUBMENU.LIST)
                             (AR.GET.ASSOCIATED.MENU.VAL OBJ FORMWINDOW)))
              then NIL
            else (IMAGEOBJPROP OBJ 'AR.SUBMENUS NIL)
                 (IMAGEOBJPROP OBJ 'AR.ASSOCIATED.MENU.VAL NIL)
                 (LIST "bad menu value: " VAL " --- please reset"])
)
```

;; Special

(DEFINEQ

(**AR.FORM.GET/PUT.FILE**
```
   [LAMBDA (FORMWINDOW OPERATION)                                    ; Edited  5-Aug-88 11:09 by bvm
     (AR.PROMPT.CLEAR FORMWINDOW)
     (LET* [(PWINDOW (GETPROMPTWINDOW FORMWINDOW))
            (FILE (PROMPTFORWORD (if (EQ OPERATION 'Get)
                                     then "Get File: "
                                   else "Put File: ")
                        (WINDOWPROP FORMWINDOW 'AR.GET/PUT.FILE.NAME)
                        NIL PWINDOW NIL 'TTY]
           (TERPRI PWINDOW)
           (if FILE
               then (WINDOWPROP FORMWINDOW 'AR.GET/PUT.FILE.NAME FILE)
                    (if (EQ OPERATION 'Get)
                        then (AR.GET.AR FORMWINDOW FILE)
                      elseif (SETQ FILE (AR.FORM.SAVE FORMWINDOW FILE))
                        then (WINDOWPROP FORMWINDOW 'TITLE (CONCAT "Saved " FILE))
                             (TEDIT.STREAMCHANGEDP FORMWINDOW T])
```

(**AR.GET.NEXT**
```
   [LAMBDA (FORMWINDOW)                                              ; Edited  5-Aug-88 11:21 by bvm
```

;; Gets the next (existing) AR in numeric order after CURR.NUM (the one now in the window).

```
     (LET [(CURR.NUM (OR (WINDOWPROP FORMWINDOW 'AR.FORM.NUMBER)
                         (FIXP (AR.GET.NUMBER.FIELD FORMWINDOW]
          (if (NOT CURR.NUM)
              then (AR.PROMPT.PRINT FORMWINDOW "Can't GetNext when there isn't a current number")
            else (bind *UPPER-CASE-FILE-NAMES* AR.LIMIT do  ;; Keep going until we find a real AR.
                    (SETQ CURR.NUM (ADD1 CURR.NUM))
                    (COND
                       ((INFILEP (AR.FILENAME CURR.NUM))
                          ; ar exists. Get it.
                        (AR.MENU.FN.GET FORMWINDOW CURR.NUM)
                        (RETURN))
                       ((>= CURR.NUM (OR AR.LIMIT (SETQ AR.LIMIT
                                                    (AR.GET.SUBMIT.NUM
                                                         FORMWINDOW T))
                             (RETURN)))
                        ; next AR number is equal to the number to be assigned to the
                        ; next AR submitted
                        (AR.PROMPT.PRINT FORMWINDOW T "Next "
                             AR.IDENTIFICATION.STRING " hasn't been
                             submitted yet.")
```

```
                                                                (RETURN))
                                                           (T  (AR.PROMPT.PRINT FORMWINDOW T
                                                                      AR.IDENTIFICATION.STRING " #" CURR.NUM
                                                                      " doesn't exist, checking next ar."])
```

(AR.FORM.FILL.IN.DEFAULTS
```
   [LAMBDA (FORMWINDOW)                                                  ; Edited  4-Aug-88 15:36 by bvm
      (LET ((FORMSTREAM (TEXTSTREAM FORMWINDOW))
            ALREADY.FILLED DEFAULTS)
           [AR.MAP.BUTTONS FORMSTREAM
                   (FUNCTION (LAMBDA (TOBJ OBJ CH#)
                               (LET [(NEWVALUE (IMAGEOBJPROP OBJ 'FILLINVALUE]
                                                              ; Yes, this button has a "Fill In Defaults" prop
                                    [if NEWVALUE
                                        then (push DEFAULTS (LIST (IMAGEOBJPROP OBJ 'MBTEXT)
                                                                  (if (LISTP NEWVALUE)
                                                                      then (EVAL NEWVALUE)
                                                                    else NEWVALUE)))
                                         (if (> [if (IMAGEOBJPROP OBJ 'AR.PROTECTED.FLG)
                                                    then (IMAGEOBJPROP OBJ 'AR.FIELD.LEN)
                                                  else (fetch (SELECTION DCH) of (OR (MBUTTON.FIND.NEXT.FIELD TOBJ
                                                                                          CH#)
                                                                                     (SHOULDNT "Can't find field
                                                                                          for button"]
                                                0)
                                             then                       ; Field already has a value
                                                       (push ALREADY.FILLED (IMAGEOBJPROP OBJ 'MBTEXT]
                                                              ; Return NIL so that the iteration continues
                                         NIL]
           (if [AND ALREADY.FILLED (NOT (MOUSECONFIRM (LET ((*PRINT-CASE* :UPCASE))
                                                       (CL:FORMAT NIL "The ~{~A ~}field~:[ is~;s are~] already
                                                            non-empty" ALREADY.FILLED (CDR ALREADY.FILLED)))
                                       "Click LEFT to overwrite anyway"
                                       (GETPROMPTWINDOW FORMWINDOW]
               then (ERROR!))
           (AR.REPLACE.FILL.INS FORMWINDOW DEFAULTS)
           (AR.PROMPT.PRINT FORMWINDOW " done"])
```

(AR.CURRENT.LISP.VERSION
```
   [LAMBDA NIL                                                          ; Edited 16-Feb-88 13:15 by bvm
      (CONCAT (L-CASE MAKESYSNAME T)
              " "
              (SUBSTRING MAKESYSDATE 1 (if (STRING-EQUAL MAKESYSNAME "LISPCORE")
                                           then                         ; Give the whole gory date
                                                NIL
                                         else                          ; Assume only one real release per day (tee hee), so skip the
                                                                        ; time
                                              -10])
```

)

;; Misc

(DEFINEQ

(AR.PROMPT
```
   [LAMBDA (WORDS FORMWINDOW)                                           ; Edited 10-Feb-88 14:08 by bvm
      (PROG ((*PRINT-BASE* 10)
             (PWINDOW (GETPROMPTWINDOW FORMWINDOW 2)))
            (CLEARW PWINDOW)
            (if (LISTP WORDS)
                then (for X in WORDS do (PRIN1 X PWINDOW))
              else (PRIN1 WORDS PWINDOW])
```

(AR.PROMPT.PRINT
```
   [LAMBDA ARGS                                                         ; Edited 20-Jul-88 18:24 by bvm

   ;; Real arglist is (formwindow &rest strings).  Prints each of strings to FORMWINDOW's prompt window.  T means new line.

      (LET ((*PRINT-BASE* 10)
            (PWINDOW (GETPROMPTWINDOW (ARG ARGS 1)
                            2))
            STR)
           (for I from 2 to ARGS do (SELECTQ (SETQ STR (ARG ARGS I))
                                        (T (FRESHLINE PWINDOW))
                                        (:CLEAR (CLEARW PWINDOW))
                                        (PRIN1 STR PWINDOW])
```

(AR.PROMPT.CLEAR
```
   [LAMBDA (FORMWINDOW)                                                 ; Edited 17-Feb-88 11:13 by bvm
      (CLEARW (GETPROMPTWINDOW FORMWINDOW 2])
```

(AR.GET.FILENAME

```
[LAMBDA (NUM PUTFLG)                                                   (* jds " 7-Nov-86 10:48")

    ;; Convert from an AR number to the corresponding file name

;;; PROG (FILE) (CLRPROMPT) (SETQ FILE (PROMPTFORWORD (CONCAT 'What file should I use for AR# ' NUM '? ') NIL NIL PROMPTWINDOW))
;;; (if FILE then (RETURN (MKATOM FILE))) (if PUTFLG then (FRESHLINE PROMPTWINDOW) (printout PROMPTWINDOW 'do you really want to
;;; PUT to the lispar database?') (if (NULL (MOUSECONFIRM)) then (RETURN NIL))) (RETURN (AR.FILENAME NUM))

    (COND
        ((FIXP NUM)
         (AR.FILENAME NUM))
        (T NIL])
```

(**AR.READ.NUMBER**
```
  [LAMBDA (RETFLG)                                                     ; Edited  4-Aug-88 12:37 by bvm
    (RESETLST
        (RESETSAVE (TTY.PROCESS (THIS.PROCESS)))
        (PROMPTPRINT "Type or select digits of desired AR.")
        (RESETSAVE NIL '(CLRPROMPT))
        (OR (RNUMBER (CONCAT AR.IDENTIFICATION.STRING " number")
                     NIL NIL NIL T NIL T T)
            (AND (NOT RETFLG)
                 (ERROR!)))))])
```

(**AR.FILENAME**
```
  [LAMBDA (ARN)                                                        ; Edited 12-Feb-88 16:19 by bvm
    (CONCAT AR.DIRECTORY (SUBSTRING (+ 100000 ARN)
                                    -5 -1)
            ".AR"])
```

(**AR.READ.BYTES**
```
  [LAMBDA (STREAM NBYTES START)                                        ; Edited 12-Feb-88 12:46 by bvm

    ;; Collect a list of NBYTES bytes by reading from STREAM starting at START or current position

    (if START
        then (SETFILEPTR STREAM START))
    (to NBYTES collect (BIN STREAM])
```

(**AR.USERNAME**
```
  [LAMBDA NIL                                                          ; Edited  4-Aug-88 15:08 by bvm
    (if (GETD 'FULLUSERNAME)
        then (FULLUSERNAME)
      else (USERNAME NIL NIL T])
)
```

;; These have special knowledge of TEdit I wish I didn't really need

```
(DEFINEQ
```

(**TEDIT.FAST.RAW.INCLUDE**
```
  [LAMBDA (TEXTSTREAM INSTREAM START END INSERTCH#)                    ; Edited 15-Jun-90 10:42 by jds

    ;; takes a text stream and an OPEN stream to include at character INSERTCH#.  Note: Start and End are inclusive ptrs, unlike in copybytes and
    ;; friends.  No interpretation (alternate file type e.g. Bravo) takes place.  INSTREAM is not copied, so you'd better not be changing it.

    (LET* [(TEXTOBJ (TEXTOBJ TEXTSTREAM))
           (PCTB (fetch (TEXTOBJ PCTB) of TEXTOBJ))
           (INSPC# (OR (\CHTOPCNO INSERTCH# PCTB)
                       (INDEX (fetch CHNUM of (\LASTNODE PCTB))
                              PCTB)))
           (INSPC (fetch PCE of (FINDNODE-INDEX PCTB INSPC#)))
           (LEN (- (OR END (GETEOFPTR INSTREAM))
                   (OR START (SETQ START 0]                            ; INSPC is the piece to make the insertion in
        (COND
          ([AND (NEQ INSPC 'LASTPIECE)
                (> INSERTCH# (fetch CHNUM of (FINDNODE-INDEX PCTB INSPC#]
                                                                       ; Must split the piece.
            (SETQ INSPC (\SPLITPIECE INSPC INSERTCH# TEXTOBJ INSPC#))
            (add INSPC# 1)))
        (\TEDIT.INSERT.PIECES TEXTOBJ INSERTCH#
               (create PIECE
                       PFILE _ INSTREAM
                       PFPOS _ START
                       PLEN _ LEN
                       PREVPIECE _ NIL
                       NEXTPIECE _ NIL
                       PLOOKS _ (fetch (TEXTOBJ DEFAULTCHARLOOKS) of TEXTOBJ)
                       PPARALAST _ NIL
                       PPARALOOKS _ (fetch (TEXTOBJ FMTSPEC) of TEXTOBJ))
               LEN INSPC INSPC#)
        (add (fetch (TEXTOBJ TEXTLEN) of TEXTOBJ)
             LEN])
```

(AR.PIECE.CHANGED
```
  [LAMBDA (TEXTOBJ TEXTSTREAM CH# REFSTREAM START LEN)          ; Edited 15-Jun-90 10:42 by jds
```
;; Compares TEXTOBJ/TEXTSTREAM at position CH# with the contents of REFSTREAM from filepointer START for the next LEN bytes. If they're
;; different, returns T.

;; Do this by comparing pieces. This is fast in the average case (the piece is unchanged), and takes into account the fact that the textstream may
;; be backed by REFSTREAM, so file pointers would step on each other.
```
        (LET* ((PCTB (fetch (TEXTOBJ PCTB) of TEXTOBJ))
               (PIECE# (\CHTOPCNO CH# PCTB))
               PIECE)
              (if (NULL PIECE#)
                  then                                                          ; Shouldn't happen
                      T
                else (SETQ PIECE (fetch PCE of (FINDNODE-INDEX PCTB PIECE#)))
                     (do (if (ATOM PIECE)
                             then                                               ; Shouldn't happen
                                 (RETURN NIL))
                         (if [NOT (if (EQ (fetch (PIECE PFILE) of PIECE)
                                          REFSTREAM)
                                      then                                      ; Same as reference stream--they're same if starts match,
                                                                                ; assume different otherwise
                                          (= (fetch (PIECE PFPOS) of PIECE)
                                             START)
                                    else                                        ; Somewhere else, so compare byte by byte
                                        (SETFILEPTR TEXTSTREAM (SUB1 CH#))
                                        (SETFILEPTR REFSTREAM START)
                                        (to (fetch (PIECE PLEN) of PIECE) always (EQ (BIN TEXTSTREAM)
                                                                                     (BIN REFSTREAM]
                             then (RETURN T))
                         (if (> (SETQ LEN (- LEN (fetch (PIECE PLEN) of PIECE)))
                                0)
                             then (add START (fetch (PIECE PLEN) of PIECE))
                                  (add CH# (fetch (PIECE PLEN) of PIECE))
                                  (SETQ PIECE (fetch (PIECE NEXTPIECE) of PIECE))
                           else                                                 ; That's all the way to the end, so we succeeded
                               (RETURN NIL])
)
```

;; Patch for Lyric

```
(DEFINEQ
```

(AR.UNSELECT.ITEM
```
  [LAMBDA (BROWSER ITEM)                                                        ; Edited 18-Feb-88 10:55 by bvm
     (\CALLME 'TB.UNSELECT.ITEM)
```
;; Copy of the definition of TB.UNSELECT.ITEM for use in Lyric (where there was no such beast)
```
     (if (ffetch (TABLEITEM TISELECTED) of (\DTEST ITEM 'TABLEITEM))
         then (LET ((N (ffetch (TABLEITEM TI#) of ITEM)))
                   (TB.DESELECTRANGE (\DTEST BROWSER 'TABLEBROWSER)
                          N N)
                   (TB.SHOW.SELECTION BROWSER N 'ERASE])
)
```

;; Hardcopying AR's

```
(DEFINEQ
```

(AR.DISPLAY
```
  [LAMBDA (AR# WINDOW PROMPTW)                                                  ; Edited  4-Aug-88 12:40 by bvm
```
;; Displays AR# as a readonly textstream. Uses WINDOW if given, otherwise prompts for one. PROMPTW is optional window for error messages.
```
     (LET ((TITLE (CONCAT AR.IDENTIFICATION.STRING " " AR#))
           TS)
          (if WINDOW
              then (CLEARW WINDOW)
                   (WINDOWPROP WINDOW 'TITLE TITLE)
            else (SETQ WINDOW (CREATEW NIL TITLE))
                 (WINDOWPROP WINDOW 'ICONFN (FUNCTION TEXTICON)))
          (if (SETQ TS (AR.DISPLAY.TEXTSTREAM AR# (WINDOWPROP WINDOW 'WIDTH)
                              NIL PROMPTW))
              then (OPENTEXTSTREAM TS WINDOW NIL NIL '(READONLY T SEL DON'T])
```

(AR.HARDCOPY
```
  [LAMBDA (NUMBERS PROMPTW)                                                     ; Edited  4-Aug-88 12:43 by bvm
```
;; Hardcopy the ARs in the list NUMBERS. PROMPTW is window for progress output and error messages, defaults to T.
```
     (if (AND NUMBERS (NLISTP NUMBERS))
         then (SETQ NUMBERS (LIST NUMBERS)))
     [if (NULL PROMPTW)
         then (SETQ PROMPTW (GETSTREAM T 'OUTPUT]
     (for TAIL on NUMBERS bind TEXTSTREAM VALUE [TITLE _ (COND
```

```
                                                                  ((CDR NUMBERS)
                                                                   (CONCAT "Selected " AR.IDENTIFICATION.STRING "s"))
                                                                  (T (CONCAT AR.IDENTIFICATION.STRING "# " (CAR NUMBERS]
                            (N _ 0)
                            (PARTNO _ 0)
                            (LASTPAGENO _ 0)
                            NPAGES
      do
       (if
        (SETQ VALUE
         (AR.DISPLAY.TEXTSTREAM
          (CAR TAIL)
          AR.HARDCOPY.WIDTH
          [if TEXTSTREAM
            elseif (CDR NUMBERS)
              then                                              ; Make our own textstream with a pagelayout so we can print
                                                                ; running headers
                                                                ; Note that PY is lower than header Y because of TEdit bug in
                                                                ; placement
                 (OPENTEXTSTREAM "" NIL NIL NIL
                     `(FONT ,ARFONT PARALOOKS (PARALEADING 1)
                            PAGEFORMAT
                            ,[TEDIT.SINGLE.PAGEFORMAT T -36 (- -36 AR.HARDCOPY.PAGENO.KLUDGE.OFFSET)
                                  `(FONT ,ARHEADERFONT)
                                  'RIGHT 72 36 72 72 NIL NIL NIL
                                  `((HEADING ,(- -36 (STRINGWIDTH (CONCAT AR.IDENTIFICATION.STRING "
                                                                             99999999")
                                                                  ARHEADERFONT))
                                             -36))
                                  NIL
                                  `(STARTINGPAGE# ,(ADD1 LASTPAGENO]
                            TEDIT.TENTATIVE NIL]
          PROMPTW))
         then (SETQ TEXTSTREAM VALUE)
              (PRIN1 "." PROMPTW)
              (add N 1)
              (if (AND (CDR TAIL)
                       (> (GETEOFPTR TEXTSTREAM)
                          AR.HARDCOPY.MAXLENGTH))
                  then                                          ; That's enough for one pass, let's send it off
                     (FRESHLINE PROMPTW)
                     (PRINTOUT PROMPTW "Formatting part " (add PARTNO 1))
                     (SETQ NPAGES (TEDIT.HARDCOPY TEXTSTREAM NIL NIL (CONCAT TITLE " [Part " PARTNO "]")))
                     (if (FIXP NPAGES)
                         then                                   ; Doesn't work in Lyric
                            (add LASTPAGENO NPAGES))
                     (PRINTOUT PROMPTW "...done" T)
                     (SETQ TEXTSTREAM NIL)))
      finally (RETURN (if TEXTSTREAM
                          then                                  ; Could be empty if none of the numbers were good.  Can have
                                                                ; the Hardcopy done in its own process, since we do't need to
                                                                ; wait for the storage to be free.
                              (if (NEQ PARTNO 0)
                                  then (SETQ TITLE (CONCAT TITLE " [Part " (add PARTNO 1)
                                                           "]"))
                                  else (SETQ PARTNO NIL))
                              [ADD.PROCESS `(,(FUNCTION TEDIT.HARDCOPY)
                                              ',TEXTSTREAM NIL NIL ',TITLE]
                              (CONCAT (if (NULL (CDR NUMBERS))
                                          then TITLE
                                          else (CL:FORMAT NIL "~D ~As~@[ in ~D parts~]" N AR.IDENTIFICATION.STRING
                                                          PARTNO))
                                      " queued for printing"])
```

(**AR.DISPLAY.TEXTSTREAM**
```
  [LAMBDA (AR# WIDTH TEXTSTREAM PROMPTW)                         ; Edited  4-Aug-88 12:44 by bvm

    ;; Create a textstream containing the contents of AR# layed out as in an AR edit window, but vanilla readonly text.  WIDTH is the width I would like
    ;; tabs layed out.  If an error occurs, prints the condition to PROMPTW and returns NIL.  If TEXTSTREAM is supplied, new AR is appended to it,
    ;; and a header line is placed before it (this is for multiple hardcopy).

    (PROG ((SCRATCH (OPENSTREAM '{NODIRCORE} 'BOTH))
           (BOLD (LIST 'FONT ARBOLDFONT))
           (NTABS 0)
           CH# FIRSTCH# TABSTOPS TAB.CH# SPEC LEN MAP LASTFIELD CONDITION)
          (CL:MULTIPLE-VALUE-SETQ (MAP CONDITION)
                   (AR.FETCH.AND.PARSE.AR AR# SCRATCH))
          (if CONDITION
              then                                              ; Failed to load ar
                 [PRINTOUT PROMPTW T (CL:TYPECASE CONDITION
                                       (XCL:FILE-NOT-FOUND (CONCAT "Can't find " AR.IDENTIFICATION.STRING
                                                                   " " AR#))
                                       (T (CL:FORMAT NIL "Failed to load ~A ~A because: ~A"
                                                     AR.IDENTIFICATION.STRING AR# CONDITION)))]
                 (RETURN NIL))
          (if TEXTSTREAM
              then                                              ; Appending to existing stream
```

```
                       [SETQ CH# (SETQ FIRSTCH# (ADD1 (GETEOFPTR TEXTSTREAM]
               else [SETQ TEXTSTREAM (OPENTEXTSTREAM "" NIL NIL NIL '(FONT ,ARFONT PARALOOKS (PARALEADING 1)
                                                                          TEDIT.TENTATIVE NIL]
                   (SETQ CH# 1))
           (for FIELD in (OR AR.DISPLAY.FORMAT AR.FORM.FORMAT)
              do (BLOCK)
                 (if (EQ FIELD 'TAB)
                     then                                                ; Separates fields all on one line
                          (SETQ TAB.CH# CH#)
                          (add NTABS 1)
                          (if (EQ LASTFIELD 'TAB)
                              then                                       ; two tabs in a row, I'll punt the optimization
                                   (TEDIT.INSERT TEXTSTREAM "      ")
                                   (add CH# 1))
                   elseif (EQ FIELD 'CR)
                     then                                                ; Go to a new line.  Come up with tabs to divide the space evenly
                                                                         ; among the fields
                          (if (> NTABS 0)
                              then (push TABSTOPS NTABS TAB.CH#)
                                   (SETQ NTABS 0))
                          (TEDIT.INSERT TEXTSTREAM "
                            " CH#)
                          (add CH# 1)
                   elseif (NOT (LITATOM FIELD))
                     then                                                ; Random string to print
                          (if (EQ LASTFIELD 'TAB)
                              then (TEDIT.INSERT TEXTSTREAM "      ")
                                   (add CH# 1))
                          (TEDIT.INSERT TEXTSTREAM FIELD CH#)
                          (add CH# (NCHARS FIELD))
                     else                                                ; It's a field
                          (TEDIT.INSERT TEXTSTREAM (SETQ SPEC (if (EQ LASTFIELD 'TAB)
                                                                  then
                                                                  ; Pack in a saved up tab to reduce the total string usage
                                                                       (CONCAT "      " FIELD "  ")
                                                                  else (CONCAT FIELD "  ")))
                                        CH# BOLD)
                          (add CH# (NCHARS SPEC))
                          (SETQ SPEC (ASSOC FIELD MAP))
                          (if (AND SPEC (> (SETQ LEN (CADDR SPEC))
                                           0))
                              then                                       ; Insert body of field
                                   (TEDIT.FAST.RAW.INCLUDE TEXTSTREAM SCRATCH (SETQ SPEC (CADR SPEC))
                                          (+ SPEC LEN)
                                          CH#)
                                   (add CH# LEN)))
                 (SETQ LASTFIELD FIELD))
           (while TABSTOPS bind CACHED.TABS TB
              do                                                         ; Process each <#tabs chpos> pair and set a tab stop there.
              (SETQ NTABS (pop TABSTOPS))
              (TEDIT.PARALOOKS
               TEXTSTREAM
               (if (CDR (ASSOC NTABS CACHED.TABS))
                   else                                                  ; Cache tab settings for this number of tabs
                        [push CACHED.TABS
                              (CONS NTABS (SETQ TB
                                               '(TABS (NIL ,@(for I from 1 to NTABS
                                                                bind (TABWIDTH _ (IQUOTIENT WIDTH (ADD1 NTABS)))
                                                                collect (CONS (ITIMES I TABWIDTH)
                                                                              'LEFT]
                        TB)
               (pop TABSTOPS)
               1))
           (if FIRSTCH#
               then                                                     ; Insert a header paragraph in front of AR text
                    (LET ((HEAD (CONCAT AR.IDENTIFICATION.STRING " " AR# "
                          ")))
                         [TEDIT.INSERT TEXTSTREAM HEAD FIRSTCH# '(FONT ,ARHEADERFONT]
                         (TEDIT.PARALOOKS TEXTSTREAM '(TYPE PAGEHEADING SUBTYPE HEADING LINELEADING 0 PARALEADING
                                                      0)
                               FIRSTCH# 1)
                         (if (> FIRSTCH# 1)
                             then                                       ; Also need page break
                                  (TEDIT.PARALOOKS TEXTSTREAM '(NEWPAGEBEFORE T)
                                         (+ FIRSTCH# (NCHARS HEAD))
                                         1)))
               else                                                     ; Get rid of the selection
                    (TEDIT.SETSEL TEXTSTREAM CH# 0 'RIGHT))
           (RETURN TEXTSTREAM])
)

(RPAQ? AR.HARDCOPY.WIDTH 504)

(RPAQ? AR.HARDCOPY.MAXLENGTH 40000)

(RPAQ? AR.DISPLAY.FORMAT NIL)
```

;; These VARS are AR-system change these to work on different AR databases

(RPAQQ **AR.FORM.FORMAT**
        (Number%: TAB Date%: CR Submitter%: TAB Source%: CR CR Subject%: CR CR |Assigned To:| TAB Attn%: CR CR
            Status%: TAB In/By%: CR |Problem Type:| TAB Impact%: CR Difficulty%: TAB Frequency%: CR TAB
            Priority%: CR CR System%: TAB Subsystem%: CR Machine%: TAB Disk%: CR |Lisp Version:| TAB
            |Source Files:| CR |Microcode Version:| TAB |Memory Size:| CR |File Server:| TAB
            |Server Software Version:| CR CR Disposition%: CR CR |Release Note:| CR CR Description%: CR CR
            Workaround%: CR |Test Case:| CR CR Edit-By%: TAB Edit-Date%: CR))

(RPAQQ **AR.FORM.SPECS**
        ((Number%: FIELDTYPE PROTECTEDSTRING)
         (Date%: FIELDTYPE PROTECTEDSTRING)
         (Submitter%: FIELDTYPE STRING INITIALVALUE (AR.USERNAME))
         (Source%: FIELDTYPE STRING INITIALVALUE (AR.USERNAME))
         (Subject%: FIELDTYPE STRING)
         (|Assigned To:| FIELDTYPE STRING)
         (Attn%: FIELDTYPE STRING)
         (Status%: FIELDTYPE MENU MENULIST (New Open Open/Unreleased Fixed Closed Declined Superseded Obsolete
                                            Incomplete Internal Wish)
                INITIALVALUE New)
         (In/By%: FIELDTYPE STRING)
         (|Problem Type:| FIELDTYPE MENU MENULIST (Bug |Design - Impl| Feature |Design - UI| Documentation
                                            Performance))
         (Impact%: FIELDTYPE MENU MENULIST (Fatal Serious Moderate Annoying Minor))
         (Difficulty%: FIELDTYPE MENU MENULIST (Easy Moderate Hard Very% Hard Impossible))
         (Frequency%: FIELDTYPE MENU MENULIST (Everytime Intermittent Once))
         (Priority%: FIELDTYPE MENU MENULIST (Absolutely Hopefully Perhaps Unlikely))
         (System%: FIELDTYPE MENU ASSOCSUBMENU Subsystem%: MENULIST
                (Communications |Windows and Graphics| Operating% System Language% Support
                        Programming% Environment Text Common% Lisp CLOS Port Maiko LOOPS PCE PROLOG 4045 Rooms
                        Library BusMaster NoteCards Documentation Other% Software))
         (Subsystem%: FIELDTYPE SUBMENU ASSOCMENU System%: SUBMENULIST
                (Communications (NS% Protocols NS% Filing NS% Printing PUP% Protocols PUP% FTP Grapevine Leaf
                                    RS232 VAX% Server DEI EVMS/RPC Lisp% Servers Clearinghouse TCP/IP
                                    Centronics TTYPort Chat Chat% Interface |Pup Chat Driver| |NS Chat Driver|
                                    |RS232 Chat Driver| |TTYPort Chat Driver| |Chat DM2500 Emulator|
                                    |Chat VT100 Emulator| NSMaintain Other)
                        |Windows and Graphics|
                        (Window% System Library Fonts Printing Color Bitmaps Demos Menus Other)
                        Operating% System
                        (Virtual% Memory |Generic File Operations| DLion% Disk Daybreak% Disk DLion% Floppy
                                Daybreak% Floppy Dolphin/Dorado% Disk Processes Streams Keyboard Mouse Other)
                        Language% Support
                        (Arithmetic |Compiler, Code Format| For/If Microcode Storage% Formats/Mgt
                                Garbage% Collection |Read and Print| |Stack and Interpreter|
                                |Bootstrapping and Teleraid| Diagnostics Other)
                        Programming% Environment
                        (Break% Package Code% Editor DWIM Inspector File% Package History Masterscope PSW
                                Record% Package Performance% Tools Edit% Interface Exec Presentations Stepper Other
)
                        Text
                        (TEdit TTYIN Lafite AR% Database Other)
                        Common% Lisp
                        (Type% System Declarations Macros Control% Structure Evaluator Symbols/Packages Arithmetic
                                Characters/Strings Sequences Lists Arrays Structures Hash% Tables |Streams and I/O|
                                |File System Interface| Error% System Compiler Tamarin% Support
                                Microcoded% Operations Common% Loops Other)
                        CLOS
                        (Language Browsers Methods Classes Meta% Classes Other)
                        Port
                        (Other)
                        Maiko
                        (Bytecode% Emulation Native% Code I/O% System Host% Integration |Host User Interface|
                                |Foreign Fn Interface| Installation% Procedure Documentation Other)
                        LOOPS
                        (Active% Values Composite% Objects Objects Browsers User% Interface Virtual% Copy Other)
                        PCE
                        (Monochrome% Display Color% Display Keyboard |Emulated Rigid Disk| Floppy% Disk
                                Printer% Port User% Interface Programmatic% Interface |File System Interface|
                                Memory Ethernet Configuration% Tools Other)
                        PROLOG
                        (Arithmetic Dinfo Microcode Editor% Interface Compiler Interpreter I/O Debugging
                                Prolog-Lisp% Interface Other)
                        4045
                        (XLPStream Remoteserver HQStream PSO Other)
                        Rooms
                        (Window% Types Overview Suites Buttons Documentation Other)
                        Library
                        (Cash-File Centronics CharCodeTables Copyfiles DEdit DatabaseFns EditBitmap
                                |FX-80 Printer Support| Filebrowser Font% Samples GCHax GraphZoom Grapher Hash
                                Hash-File |Image Object Interface| Kermit Masterscope% Browser MatMult
                                |Press Printer Support| ReadNumber SameDir Sketch SysEdit/EXPORTS.ALL Tablebrowser
                                TExec TextModules Virtual% Keyboards Where-Is Other)
                        BusMaster
                        (Speech Color Other)

```
                    NoteCards
                    (User% Interface Programmer's% Interface System% Interface Notefiles Links Documentation
                            Text% Cards File% Boxes Sketch% Cards Graph% Cards Browser% Cards Search% Cards
                            |Link Index Cards| Document% Cards Other% Cards Library)
                    Documentation
                    (Tools |1108 Users Guide| |1186 Users Guide| Primer |Product Descr/Tech Summary|
                            Hardware Installation Guide| Programmers% Introduction
                            |Interlisp Reference Manual| |Library Package Manual|
                            |Internal System Documentation| Other)
                    Other% Software
                    (Installation% Utility Release% Procedure Other)))
        (Machine%: FIELDTYPE MENU ASSOCSUBMENU Disk%: MENULIST (1100 1108 1132 1186)
                FILLINVALUE
                (SELECTQ (MACHINETYPE)
                        (DANDELION 1108)
                        (DOLPHIN 1100)
                        (DORADO 1132)
                        (DOVE 1186)
                        AR.NULL.BUTTON.VALUE))
        (Disk%: FIELDTYPE SUBMENU ASSOCMENU Machine%: SUBMENULIST
                (1100 NIL 1108 (|SA1000 (10MB)| |SA4000 (29MB)| |Q2040 (43MB)| |Q2080 (80MB)| |T80 (80MB)|
                                    |T300 (300MB)| Other)
                1132
                (|T80 (80MB)| Century315 Other)
                1186
                (|ST212 (10MB)| |TM703 (20MB)| |TM702 (20MB)| |ST4026 (20MB)| |Q530 (20MB)| |Q540 (40MB)|
                        |Micropolis 1303 (40MB)| |Micropolis 1325 (80MB)|)))
        (|Lisp Version:| FIELDTYPE STRING FN AR.BUTTONFN.OFFER.DEFAULT FILLINVALUE (AR.CURRENT.LISP.VERSION))
        (|Source Files:| FIELDTYPE STRING)
        (|Microcode Version:| FIELDTYPE STRING FILLINVALUE (MICROCODEVERSION))
        (|Memory Size:| FIELDTYPE STRING FILLINVALUE (REALMEMORYSIZE))
        (|File Server:| FIELDTYPE MENU MENULIST (8037 IFS NS |VAX/VMS - 3Mb| |VAX/VMS - 10Mb| VAX/UNIX
                                            Micro% VAX/VMS Other))
        (|Server Software Version:| FIELDTYPE STRING)
        (Disposition%: FIELDTYPE PROTECTEDSTRING)
        (|Release Note:| FIELDTYPE STRING)
        (Description%: FIELDTYPE STRING)
        (Workaround%: FIELDTYPE STRING)
        (|Test Case:| FIELDTYPE STRING)
        (Edit-By%: FIELDTYPE PROTECTEDSTRING)
        (Edit-Date%: FIELDTYPE PROTECTEDSTRING)))
```

(RPAQQ **AR.INTERESTING.SUBMIT.FIELDS** (|Release Note:| Workaround%: |Test Case:|))

(RPAQ **AR.DIRECTORY** "{AR:MV:Envos}<LispARs>")

(RPAQ **AR.INFO.FILE.NAME** "{AR:MV:Envos}<LispARs>LispARs.tds")

(RPAQ **AR.SUBMIT.NUM.FILE.NAME** "{AR:MV:Envos}<LispARs>LispARs.num")

(RPAQ **AR.IDENTIFICATION.STRING** "AR")

(RPAQ? **ARBUTTONFONT** (FONTCREATE 'HELVETICA 12 'BOLD))

(RPAQ? **ARFONT** (FONTCREATE 'TIMESROMAN 10))

(RPAQ? **ARBOLDFONT** (FONTCREATE 'HELVETICA 10 'BOLD))

(RPAQ? **ARHEADERFONT** (FONTCREATE 'HELVETICA 8))

(RPAQ? **AR.ICONFONT** (FONTCREATE 'GACHA 8))

(RPAQ? **AR.FILE.TRIES** 10)

(RPAQ? **AR.NO.MESSAGE.FLG** NIL)

(RPAQ **AR.NULL.BUTTON.VALUE** (PACKC))

(RPAQQ **AR.FORM.MENU.TITLEMENU.ITEMS**
```
        ((Clear '(AR.MENU.FN.CLEAR NIL)
                "Clears all the fields of the AR")
        (New '(AR.MENU.FN.CLEAR T)
            "Same as creating a new form: sets all fields to default initial values")
        (Get 'Get "Retrieves the AR whose number is given in the %"Number:%" field")
        (GetNext 'AR.GET.NEXT "Gets the next existing AR after this one")
        (Put 'AR.MENU.FN.PUT "Saves an edited AR, or submits a new AR")
        ("Put & GetNext" 'AR.MENU.FN.PUT&GETNEXT "Stores the current AR, and Gets the next existing AR")
        ("Put & Get" 'AR.MENU.FN.PUT&GET "Stores the current, and Gets another")
        ("Get From File" '(AR.FORM.GET/PUT.FILE Get)
                "Retrieves AR from named file")
        ("Put To File" '(AR.FORM.GET/PUT.FILE Put)
                "Stores AR into named file")
        ("Fill In Defaults" 'AR.FORM.FILL.IN.DEFAULTS "Fills in default values for Microcode Version, Machine
                Type, Lisp Version, and Memory Size")))
```

(RPAQQ **AR.FORM.MENU.TITLEMENU** NIL)

```
(RPAQQ AR.FORM.ICONSPEC (
```

```
                                   NIL (15 2 30 10)))

(DECLARE%: EVAL@COMPILE DONTCOPY

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS AR.FORM.ICONSPEC AR.NULL.BUTTON.VALUE AR.HARDCOPY.PAGENO.KLUDGE.OFFSET AR.MENU.READTABLE
        TEDIT.READTABLE AR.FORM.MENU.TITLEMENU)
)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(LOCALVARS . T)
)
```

;; Need TEDITDECLS for TEDIT.FAST.RAW.INCLUDE

```
(OR (GET 'TEDITDECLS 'FILE)
    (LOAD 'TEDITDECLS))
)

(DECLARE%: EVAL@COMPILE DOCOPY

(CL:PROCLAIM '(CL:SPECIAL AR.INFO.FILE.NAME AR.SUBMIT.NUM.FILE.NAME AR.DIRECTORY AR.NO.MESSAGE.FLG ARBUTTONFONT
                      ARFONT ARBOLDFONT ARHEADERFONT AR.ICONFONT AR.FILE.TRIES AR.HARDCOPY.MAXLENGTH
                      AR.FORM.FORMAT AR.FORM.SPECS AR.HARDCOPY.WIDTH AR.DISPLAY.FORMAT AR.IDENTIFICATION.STRING
                      AR.FORM.MENU.TITLEMENU.ITEMS AR.INTERESTING.SUBMIT.FIELDS))
)

(FILESLOAD (SYSLOAD)
        ARQUERY TABLEBROWSER TEDIT READNUMBER)

(RPAQ AR.HARDCOPY.PAGENO.KLUDGE.OFFSET (COND ((> (IDATE TEDITSYSTEMDATE)
                                                 (IDATE "23-feb-88 0000"))
                                                                          ; Bug was fixed
                                          0)
                                          (T 2)))

(DECLARE%: DONTEVAL@LOAD DOCOPY

(COND
   ((EQ MAKESYSNAME :LYRIC)
    (FILESLOAD (SYSLOAD)
          MVALUESPATCH)
    (MOVD? 'AR.UNSELECT.ITEM 'TB.UNSELECT.ITEM NIL T)))

(PUTD 'AR.UNSELECT.ITEM NIL)
```

;; Install background menu command. Smash any previous AREdit.

```
[/RPLACD [OR (CL:ASSOC "AR Edit" BackgroundMenuCommands :TEST 'STRING-EQUAL)
             (CAR (RPAQ BackgroundMenuCommands (CONS (LIST "AR Edit")
                                                     BackgroundMenuCommands))]
      '('(AR.FORM)
         "Create a new AR editor for the Lisp AR database"
         (SUBITEMS ("New AR form" '(AR.FORM)
                         "Creates a new AR editor, cleared ready to submit a new AR.")
               ("Load AR" '(AR.FORM (AR.READ.NUMBER))
                         "Creates a new AR editor and loads a specified AR into it")
               ("Display AR" '(AR.DISPLAY (AR.READ.NUMBER))
                         "Displays a specified AR in a read-only window")
               ("AR Query Form" '(AR.QFORM.CREATE)
                         "Creates an AR Query Form"]

(RPAQ BackgroundMenu )
)

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

(ADDTOVAR NLAMA )

(ADDTOVAR NLAML )

(ADDTOVAR LAMA AR.PROMPT.PRINT)
)
```

FUNCTION INDEX

VARIABLE INDEX