

File created: 18-Mar-2024 19:08:55 {LU}BUTTONS.;2

edit by: mth

changes to: (FNS \BUTTONS-EDITE)

previous date: 26-Oct-89 14:30:27 {LU}BUTTONS.;1

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

;;
;; Copyright (c) 1986-1989, 2024 by Xerox Corporation.

(RPAQQ **BUTTONSCOMS**
[

;;; BUTTONS provides a mechanism for mapping mouse clicks to actions via mouse-sensitive pictures of buttons. Each button has a label and an action, which is an arbitrary Lisp form. If the left mouse button is clicked on a button, its associated action is executed. If the action is a string it is stuffed into the system buffer and read by the current tty process; otherwise it is evaluated under the mouse process.

;;; USER INTERFACE

```
(RECORDS BUTTON)
(FNS ALIGN-BUTTONS BUTTONP BUTTONSPROP BUTTON-ACTION BUTTON-LABEL CLOSE-BUTTON CLOSE-BUTTONS COPY-BUTTON
  CREATE-BUTTON DELETE-BUTTON DELETE-BUTTONS EDIT-BUTTON EDIT-BUTTON-CONTENTS EXECUTE-BUTTON
  EXPOSE-BUTTONS LOAD-SOME-BUTTONS MOVE-BUTTON REDISPLAY-BUTTON RESTORE-BUTTONS SAVE-BUTTONS
  SAVE-SOME-BUTTONS)
(PROP ARGNAMES BUTTONSPROP BUTTON-ACTION BUTTON-LABEL)
```

;;; IMPLEMENTATION

```
(PROP MAKEFILE-ENVIRONMENT BUTTONS)
(VARS *BUTTONS-DATAVERSION* *DEFAULT-BUTTONPROPS*)
(INITVARS (*BUTTONPROPS* (COPYALL *DEFAULT-BUTTONPROPS*))
  (*ALL-BUTTONS* NIL)
  (*BUTTONS-DEFAULT-ACTION* NIL)
  (*BUTTONS-DEFAULT-LABEL* NIL)
  (*BUTTONS-EDIT-MENU* NIL)
  (*BUTTONS-EDIT-SHADE* NIL)
  (*BUTTONS-EXEC-SHADE* NIL)
  (*BUTTONS-GRID-ORIGIN* NIL)
  (*BUTTONS-LABEL-FONT* NIL)
  (*BUTTONS-MENU-FONT* NIL)
  (*BUTTONS-SAVE-DIRECTORY* NIL))
(FNS \BUTTONS-BUTTONEVENTFN \BUTTONS-DATAFILE-NAME \BUTTONS-CHANGE-LABEL \BUTTONS-CREATE-ICON
  \BUTTONS-DRAW-BOX \BUTTONS-EDITE \BUTTONS-EDIT-MENU \BUTTONS-INIT \BUTTONS-IO-EXIT
  \BUTTONS-OPEN-STREAM \BUTTONS-PROMPT-FOR-DATAFILE-NAME \BUTTONS-READ \BUTTONS-SETPROP \BUTTONS-SHOW
  \BUTTONS-SHOW-EXEC \BUTTONS-TRACK-MOUSE \BUTTONS-WAIT-MOUSE)
[COMS (* The button icon)
  (FILES (SYSLOAD FROM LISPUSERS)
    ICONW)
  (FNS DROPSHADOW ICONMASK CLEAR-MASK-OUTLINE)
  (BITMAPS *BUTTON-BITMAP*)
  (INITVARS (*BUTTON-INVERT-REGION* '(6 10 85 25))
    (*BUTTON-CLIPPING-REGION* '(7 11 83 23))
    (*BUTTON-ICON* (DROPSHADOW *BUTTON-BITMAP*))
    (*BUTTON-ICON-MASK* (ICONMASK *BUTTON-ICON*]))
  (ADDVARS (BackgroundMenuCommands ("Button Control" '(EDIT-BUTTON
    "Manipulate action buttons"))))
  (VARS (BackgroundMenu)
  (P (\BUTTONS-INIT))
  (DECLARE%: DONTVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVERS (ADDVARS (NLAMA)
    (NLAML)
    (LAMA BUTTON-LABEL BUTTON-ACTION
    BUTTONSPROP]))
```

;;; BUTTONS provides a mechanism for mapping mouse clicks to actions via mouse-sensitive pictures of buttons. Each button has a label and an action, which is an arbitrary Lisp form. If the left mouse button is clicked on a button, its associated action is executed. If the action is a string it is stuffed into the system buffer and read by the current tty process; otherwise it is evaluated under the mouse process.

;;; USER INTERFACE

(DECLARE%: EVAL@COMPILE

```
[ACCESSFNS BUTTON ((LABEL (WINDOWPROP DATUM 'BUTTON-LABEL)
  (WINDOWPROP DATUM 'BUTTON-LABEL NEWVALUE))
  (ACTION (WINDOWPROP DATUM 'BUTTON-ACTION)
    (WINDOWPROP DATUM 'BUTTON-ACTION NEWVALUE))
```

```
(EXECUTING? (WINDOWPROP DATUM 'BUTTON-EXECUTING?)
(WINDOWPROP DATUM 'BUTTON-EXECUTING? NEWVALUE])
```

)
(DEFINEQ

(ALIGN-BUTTONS

```
[LAMBDA (BUTTON) (* Koomen "30-Dec-86 16:04")
(DECLARE (GLOBALVARS *ALL-BUTTONS*))
(bind BUTTONREGION BUTTON2 BUTTON2REGION (EDGE _ (MENU (create MENU
TITLE _ "Which axis? "
ITEMS _ '(Vertical Horizontal)
CENTERFLG _ T)))

first (if (NULL EDGE)
then (RETURN))
(SETQ BUTTONREGION (WINDOWREGION BUTTON))
while (PROGN (PROMPTPRINT "Indicate another button to align: ")
(AND (SETQ BUTTON2 (WHICHW (GETPOSITION)))
(NEQ BUTTON2 BUTTON)
(FMEMB BUTTON2 *ALL-BUTTONS*)))
do (SETQ BUTTON2REGION (WINDOWREGION BUTTON2))
(MOVEW BUTTON2 (fetch (REGION LEFT) of (if (EQ EDGE 'Horizontal)
then BUTTON2REGION
else BUTTONREGION))
(fetch (REGION BOTTOM) of (if (EQ EDGE 'Vertical)
then BUTTON2REGION
else BUTTONREGION)))
finally (PROMPTPRINT "Done."))
```

(BUTTONP

```
[LAMBDA (BUTTON ERROR?) (* Koomen "18-Mar-87 14:03")
(DECLARE (GLOBALVARS *ALL-BUTTONS*))
(if (FMEMB BUTTON *ALL-BUTTONS*)
then BUTTON
elseif ERROR?
then (ERROR "Arg not a BUTTON:" BUTTON))
```

(BUTTONSPROP

```
[LAMBDA N (* Koomen " 8-Jun-88 11:42")
(DECLARE (GLOBALVARS *BUTTONPROPS*))
(PROG (PROPNAME OLDVALUE NEWVALUE)
(SETQ PROPNAME (if (IGREATERP N 0)
then (ARG N 1)))
(if (NOT PROPNAME)
then (RETURN))
(if (NEQ '*BUTTONPROPS* (CAR (LISTP *BUTTONPROPS*)))
then (RETURN))
(SETQ OLDVALUE (CADR (ASSOC PROPNAME *BUTTONPROPS*)))
(if (IGREATERP N 1)
then (SETQ NEWVALUE (ARG N 2))
(if (NOT (EQUAL NEWVALUE OLDVALUE))
then (PUTASSOC PROPNAME (LIST NEWVALUE)
*BUTTONPROPS*)
(\BUTTONS-SETPROP PROPNAME NEWVALUE)))
(RETURN OLDVALUE]))
```

(BUTTON-ACTION

```
[LAMBDA N (* Koomen "18-Mar-87 14:22")
(PROG (BUTTON OLDACTION NEWACTION)
(SETQ BUTTON (if (IGREATERP N 0)
then (ARG N 1)))
(if (NOT (BUTTONP BUTTON T))
then (RETURN))
(SETQ OLDACTION (fetch (BUTTON ACTION) of BUTTON))
(if (IGREATERP N 1)
then (SETQ NEWACTION (ARG N 2))
(replace (BUTTON ACTION) of BUTTON with NEWACTION))
(RETURN OLDACTION]))
```

(BUTTON-LABEL

```
[LAMBDA N (* edited%: "18-Mar-87 22:33")
(PROG (BUTTON OLDLABEL NEWLABEL)
(SETQ BUTTON (if (IGREATERP N 0)
then (ARG N 1)))
(if (NOT (BUTTONP BUTTON T))
then (RETURN))
(SETQ OLDLABEL (fetch (BUTTON LABEL) of BUTTON))
(if (IGREATERP N 1)
then (SETQ NEWLABEL (MKSTRING (OR (ARG N 2)
"")))
(if (NOT (EQUAL NEWLABEL OLDLABEL))
then (\BUTTONS-CHANGE-LABEL BUTTON NEWLABEL)))
(RETURN OLDLABEL]))
```

```
(CLOSE-BUTTON
 [LAMBDA (BUTTON)
 (if (BUTTONP BUTTON T)
 then (CLOSEW BUTTON]))
```

(* Koomen "18-Mar-87 13:14")

```
(CLOSE-BUTTONS
 [LAMBDA (BUTTONS)
 (DECLARE (GLOBALVARS *ALL-BUTTONS*))
 (for BUTTON in (OR (LISTP BUTTONS)
 *ALL-BUTTONS*))
 do (CLOSE-BUTTON BUTTON))
```

(* Koomen "18-Mar-87 13:09")

```
(COPY-BUTTON
 [LAMBDA (BUTTON NEWLOCATION)
 (if (BUTTONP BUTTON T)
 then (CREATE-BUTTON (COPYALL (fetch (BUTTON ACTION) of BUTTON))
 (COPYALL (fetch (BUTTON LABEL) of BUTTON))
 NEWLOCATION))
```

(* Koomen "18-Mar-87 14:58")

```
(CREATE-BUTTON
 [LAMBDA (ACTION LABEL LOCATION NOOPENFLG)
 (DECLARE (GLOBALVARS *ALL-BUTTONS* *BUTTON-ICON-MASK* *BUTTONS-DEFAULT-ACTION* *BUTTONS-DEFAULT-LABEL*
 LASTMOUSEX LASTMOUSEY))
 (if (BUTTONP ACTION)
 then
 ; Interactive
 (SETQ LABEL NIL)
 (SETQ ACTION NIL))
 (if (AND (NULL ACTION)
 (NULL LABEL))
 then (SETQ ACTION *BUTTONS-DEFAULT-ACTION*)
 (SETQ LABEL *BUTTONS-DEFAULT-LABEL*))
 elseif (NULL ACTION)
 then [SETQ ACTION `(PROMPTPRINT , (KWOTE LABEL)
 elseif (NULL LABEL)
 then (SETQ LABEL ACTION))
 (SETQ LABEL (COPYALL (MKSTRING LABEL)))
 (SETQ ACTION (COPYALL ACTION))
 (SETQ LOCATION (if (REGIONP LOCATION)
 then (CREATEPOSITION (fetch (REGION LEFT) of LOCATION)
 (fetch (REGION BOTTOM) of LOCATION))
 else (POSITIONP LOCATION)))
 (PROG [(BUTTON (ICONW (\BUTTONS-CREATE-ICON LABEL)
 *BUTTON-ICON-MASK*
 (OR LOCATION (create POSITION
 XCOORD _ LASTMOUSEX
 YCOORD _ LASTMOUSEY))
 (OR NOOPENFLG (NULL LOCATION))
 (push *ALL-BUTTONS* BUTTON)
 (WINDOWPROP BUTTON 'REPAINTFN (FUNCTION REDISPLAY-BUTTON))
 (WINDOWPROP BUTTON 'BUTTONEVENTFN (FUNCTION \BUTTONS-BUTTONEVENTFN))
 (WINDOWPROP BUTTON 'RIGHTBUTTONFN (FUNCTION \BUTTONS-BUTTONEVENTFN))
 (replace (BUTTON LABEL) of BUTTON with LABEL)
 (replace (BUTTON ACTION) of BUTTON with ACTION)
 (if (AND (NOT NOOPENFLG)
 (NULL LOCATION))
 then (MOVE-BUTTON BUTTON))
 (RETURN BUTTON])
```

```
(DELETE-BUTTON
 [LAMBDA (BUTTON)
 (DECLARE (GLOBALVARS *ALL-BUTTONS*))
 (if (BUTTONP BUTTON T)
 then (CLOSEW BUTTON)
 (SETQ *ALL-BUTTONS* (DREMOVE BUTTON *ALL-BUTTONS*]))
```

(* Koomen "18-Mar-87 13:14")

```
(DELETE-BUTTONS
 [LAMBDA (BUTTONS)
 (DECLARE (GLOBALVARS *ALL-BUTTONS*))
 (for BUTTON in (APPEND (OR (LISTP BUTTONS)
 *ALL-BUTTONS*))
 do (DELETE-BUTTON BUTTON))
```

(* edited%: "18-Mar-87 23:10")

```
(EDIT-BUTTON
 [LAMBDA (BUTTON CONTENTS?)
 (DECLARE (GLOBALVARS *ALL-BUTTONS* *BUTTONS-EDIT-SHADE*))
 (RESETFORM (\BUTTONS-SHOW BUTTON *BUTTONS-EDIT-SHADE*))
 (PROG [(CMD (if CONTENTS?
 then 'EDIT-BUTTON-CONTENTS
```

(* Koomen " 8-Jun-88 08:45")

```

else (MENU (\BUTTONS-EDIT-MENU]
(if [AND (NULL BUTTON)
(FMEMB CMD '(CLOSE-BUTTON DELETE-BUTTON REDISPLAY-BUTTON MOVE-BUTTON
EDIT-BUTTON-CONTENTS COPY-BUTTON ALIGN-BUTTONS]
then (PROMPTPRINT "Indicate button to manipulate: ")
(SETQ BUTTON (WHICHW (GETPOSITION)))
(CLRPROMPT)
(if (OR (NULL BUTTON)
(NOT (FMEMB BUTTON *ALL-BUTTONS*)))
then (RETURN)))
(if CMD
then (if (DEFINEDP CMD)
then (APPLY* CMD BUTTON)
else (PROMPTPRINT "Button command " CMD " not yet implemented!"))

```

(EDIT-BUTTON-CONTENTS

; Edited 25-Oct-89 10:47 by Koomen

```

[LAMBDA (BUTTON)
(if (BUTTONP BUTTON T)
then (PROG (OLDLABEL OLDACTION RESULT NEWLABEL NEWACTION)
(SETQ OLDLABEL (fetch (BUTTON LABEL) of BUTTON))
(SETQ OLDACTION (fetch (BUTTON ACTION) of BUTTON))
[SETQ RESULT (\BUTTONS-EDITE `(:LABEL ,(COPYALL OLDLABEL))
(:ACTION ,(COPYALL OLDACTION))
(if (NULL RESULT)
then (RETURN))
[if (SETQ NEWLABEL (FASSOC :LABEL RESULT))
then (BUTTON-LABEL BUTTON (CAR (LISTP (CDR NEWLABEL))
[if (SETQ NEWACTION (FASSOC :ACTION RESULT))
then (BUTTON-ACTION BUTTON (CAR (LISTP (CDR NEWACTION))
(RETURN BUTTON))

```

(EXECUTE-BUTTON

(* Koomen " 8-Jun-88 12:58")
(* edited%: "18-Mar-87 22:53")

```

[LAMBDA (BUTTON NOMOUSE)
(if (AND (BUTTONP BUTTON T)
(NOT (fetch (BUTTON EXECUTING?) of BUTTON)))
then (RESETFORM (\BUTTONS-SHOW-EXEC BUTTON T)
(if (OR NOMOUSE (\BUTTONS-WAIT-MOUSE BUTTON))
then (ALLOW.BUTTON.EVENTS)
(PROG ((ACTION (fetch (BUTTON ACTION) of BUTTON))
(if (LISTP ACTION)
then (EVAL ACTION)
else (BKSYSBUF ACTION))

```

(EXPOSE-BUTTONS

(* Koomen "18-Mar-87 16:31")

```

[LAMBDA (BUTTONS)
(DECLARE (GLOBALVARS *ALL-BUTTONS*))
(for BUTTON in (OR (LISTP BUTTONS)
*ALL-BUTTONS*))
do (REDISPLAY-BUTTON BUTTON])

```

(LOAD-SOME-BUTTONS

(* Koomen " 2-Dec-88 15:02")

```

[LAMBDA (FILENAME)
(if (BUTTONP FILENAME)
then ;; Invoked from button menu
(SETQ FILENAME NIL))
(if (NULL FILENAME)
then (SETQ FILENAME (\BUTTONS-PROMPT-FOR-DATAFILE-NAME "File to load buttons from (NIL to abort):"))))
(if FILENAME
then (RESTORE-BUTTONS FILENAME 'ASK])

```

(MOVE-BUTTON

(* Koomen "26-Oct-89 08:12")

```

[LAMBDA (BUTTON X/POS Y)
(DECLARE (GLOBALVARS BOXCURSOR))
[AND NIL (MOVE-BUTTON (WHICHW (GETPOSITION)
(if (BUTTONP BUTTON T)
then (PROG (BOX BL BB BW BH BR BT OK?)
(DECLARE (SPECVARS BL BB BW BH BR BT))
[if (POSITIONP X/POS)
then (SETQ BL (fetch (POSITION XCOORD) of X/POS))
(SETQ BB (fetch (POSITION YCOORD) of X/POS))
(SETQ OK? T)
elseif (AND (SMALLP X/POS)
(SMALLP Y))
then (SETQ BL X/POS)
(SETQ BB Y)
(SETQ OK? T)
elseif (AND (NULL X/POS)
(NULL Y))
then (SETQ BOX (WINDOWREGION BUTTON))
(SETQ BL (fetch (REGION LEFT) of BOX))

```

```

      (SETQ BB (fetch (REGION BOTTOM) of BOX))
      (SETQ BW (fetch (REGION WIDTH) of BOX))
      (SETQ BH (fetch (REGION HEIGHT) of BOX))
      (SETQ BR (fetch (REGION RIGHT) of BOX))
      (SETQ BT (fetch (REGION TOP) of BOX))
      (\SETCURSORPOSITION BL BB)
      (RESETLST
        (RESETSAVE (CURSOR BOXCURSOR))
        (RESETSAVE (\BUTTONS-DRAW-BOX))
        (SETQ OK? (NLSETQ (\BUTTONS-TRACK-MOUSE))))])
    (if OK?
      then (MOVEV BUTTON BL BB])

```

(REDISPLAY-BUTTON

(* Koomen " 8-Jun-88 09:10")

```

[LAMBDA (BUTTON)
  (DECLARE (GLOBALVARS *BUTTONS-EXEC-SHADE*))
  (if (BUTTONP BUTTON T)
    then (\BUTTONS-SHOW BUTTON T)
    (if (fetch (BUTTON EXECUTING?) of BUTTON)
      then (\BUTTONS-SHOW BUTTON *BUTTONS-EXEC-SHADE*]))

```

(RESTORE-BUTTONS

(* Koomen " 2-Dec-88 15:02")

```

[LAMBDA (FILENAME KEEP-CURRENT-BUTTONS?)
  (DECLARE (GLOBALVARS *BUTTONPROPS*))
  (if (BUTTONP FILENAME)
    then ;; invoked interactively
      (SETQ FILENAME)
      (SETQ KEEP-CURRENT-BUTTONS? NIL))
  (bind (BUTTONSPECS _ (\BUTTONS-READ FILENAME)) first (if (NLISTP BUTTONSPECS)
    then (RETURN)
    (if (EQ KEEP-CURRENT-BUTTONS? 'ASK)
      then (SETQ KEEP-CURRENT-BUTTONS? (MOUSECONFIRM
        "Keep current buttons? "))
      (if (NOT KEEP-CURRENT-BUTTONS?)
        then (DELETE-BUTTONS))
      ;; First element is full file name
      (SETQ FILENAME (pop BUTTONSPECS))
      ;; Second element is the new buttonprops
      (SETQ *BUTTONPROPS* (pop BUTTONSPECS))
      (\BUTTONS-SETPROP)
      ;; remaining elements are button specs
      while BUTTONSPECS do (APPLY (FUNCTION CREATE-BUTTON)
        (pop BUTTONSPECS))
      finally (RETURN FILENAME]))

```

(SAVE-BUTTONS

(* Koomen " 8-Jun-88 14:05")

```

[LAMBDA (FILENAME BUTTONS)
  (DECLARE (SPECVARS FILERDTBL)
    (GLOBALVARS *ALL-BUTTONS* *BUTTONPROPS* *BUTTONS-DATAVERSION*))
  (if (BUTTONP FILENAME)
    then ;; invoked interactively
      (SETQ FILENAME))
  (RESETLST
    (PROG ((STREAM (\BUTTONS-OPEN-STREAM FILENAME T)))
      (if (NULL STREAM)
        then (PROMPTPRINT "*** Buttons data file failed to open! ***")
        (RETURN))
      (RESETSAVE NIL (LIST (FUNCTION \BUTTONS-IO-EXIT)
        STREAM T))
      (PRINT [LIST* *BUTTONS-DATAVERSION* *BUTTONPROPS* (for BUTTON in (OR (LISTP BUTTONS)
        *ALL-BUTTONS*))
        when (BUTTONP BUTTON T)
        collect (LIST (fetch (BUTTON ACTION)
          of BUTTON)
            (fetch (BUTTON LABEL) of BUTTON)
            (WINDOWPROP BUTTON 'REGION)
          STREAM FILERDTBL)
      (RETURN (CLOSEF STREAM))))])

```

(SAVE-SOME-BUTTONS

(* Koomen " 2-Dec-88 17:16")

```

[LAMBDA (FILENAME BUTTONS)
  (DECLARE (GLOBALVARS *BUTTONS-EDIT-SHADE*))
  (RESETLST
    (LET (BUTTON SAVEBUTTONS MARKEDBUTTONS)
      [if (LISTP BUTTONS)
        then (SETQ SAVEBUTTONS BUTTONS)
        else ;; Either got here through button menu (so FILENAME is a button) or through background menu (so FILENAME is NIL)

```

```

    (if (SETQ BUTTON FILENAME)
        then (SETQ SAVEBUTTONS (LIST BUTTON))
            (SETQ MARKEDBUTTONS (LIST BUTTON)))
    (SETQ FILENAME NIL) (* EXPOSE-BUTTONS)
    (PROMPTPRINT "Click on the buttons you wish to save;" (CHARACTER (CHARCODE CR))
        " click again to undo;"
        (CHARACTER (CHARCODE CR))
        " click on non-button to stop.")
    (do (SETQ BUTTON (WHICHW (GETPOSITION)))
        (if (NOT (BUTTONP BUTTON))
            then (RETURN)
            elseif (FMEMB BUTTON SAVEBUTTONS)
                then ; remove it
                    (SETQ SAVEBUTTONS (DREMOVE BUTTON SAVEBUTTONS))
                    (\BUTTONS-SHOW BUTTON)
            else ; add it
                (push SAVEBUTTONS BUTTON)
                (if (FMEMB BUTTON MARKEDBUTTONS)
                    then (\BUTTONS-SHOW BUTTON *BUTTONS-EDIT-SHADE*)
                    else (push MARKEDBUTTONS BUTTON)
                        (RESETSAVE (\BUTTONS-SHOW BUTTON *BUTTONS-EDIT-SHADE*)))
                (if (NULL FILENAME)
                    then (SETQ FILENAME (\BUTTONS-PROMPT-FOR-DATAFILE-NAME "File to save buttons in (NIL to
                        abort):"))
                    (if FILENAME
                        then (SAVE-BUTTONS FILENAME SAVEBUTTONS))))))

```

)

```

(PUTPROPS BUTTONSPROP ARGNAMES (PROPNAM {NEWVALUE}))
(PUTPROPS BUTTON-ACTION ARGNAMES (BUTTON {NEWACTION}))
(PUTPROPS BUTTON-LABEL ARGNAMES (BUTTON {NEWLABEL}))

```

::: IMPLEMENTATION

```

(PUTPROPS BUTTONS MAKEFILE-ENVIRONMENT (:READTABLE "INTERLISP" :PACKAGE "INTERLISP" :BASE 10))
(RPAQQ *BUTTONS-DATAVERSION* 3)
(RPAQQ *DEFAULT-BUTTONPROPS*
    (*BUTTONPROPS* (GRID-ORIGIN (15 . 15))
        (DEFAULT-LABEL "Create Button")
        (DEFAULT-ACTION (CREATE-BUTTON))
        (MENU-FONT (MODERN 12 BOLD))
        (LABEL-FONT (MODERN 10 BOLD))
        (SAVE-DIRECTORY NIL)
        (EDIT-SHADE 4104)
        (EXEC-SHADE 65535)))
(RPAQ? *BUTTONPROPS* (COPYALL *DEFAULT-BUTTONPROPS*))
(RPAQ? *ALL-BUTTONS* NIL)
(RPAQ? *BUTTONS-DEFAULT-ACTION* NIL)
(RPAQ? *BUTTONS-DEFAULT-LABEL* NIL)
(RPAQ? *BUTTONS-EDIT-MENU* NIL)
(RPAQ? *BUTTONS-EDIT-SHADE* NIL)
(RPAQ? *BUTTONS-EXEC-SHADE* NIL)
(RPAQ? *BUTTONS-GRID-ORIGIN* NIL)
(RPAQ? *BUTTONS-LABEL-FONT* NIL)
(RPAQ? *BUTTONS-MENU-FONT* NIL)
(RPAQ? *BUTTONS-SAVE-DIRECTORY* NIL)

```

(DEFINEQ

```

(\BUTTONS-BUTTONEVENTFN
    [LAMBDA (BUTTON) (* Koomen " 8-Jun-88 09:19")
        (DECLARE (GLOBALVARS *BUTTONS-EDIT-SHADE* LASTMOUSEBUTTONS))
        (if (LASTMOUSESTATE (ONLY LEFT))
            then (EXECUTE-BUTTON BUTTON)
            elseif (LASTMOUSESTATE (ONLY MIDDLE))
                then (RESETFORM (\BUTTONS-SHOW BUTTON *BUTTONS-EDIT-SHADE*)
                    (MOVE-BUTTON BUTTON))
            elseif (LASTMOUSESTATE (ONLY RIGHT))
                then (EDIT-BUTTON BUTTON])

```

(BUTTONS-DATAFILE-NAME

```
[LAMBDA (FILENAME DATAVERSION)
  (DECLARE (GLOBALVARS *BUTTONS-SAVE-DIRECTORY*))
  (LET [(FILE (UNPACKFILENAME FILENAME))
        (DFLT (UNPACKFILENAME (if (EQP DATAVERSION 1)
                                   then (PACKFILENAME 'NAME 'SAVED-BUTTONS 'EXTENSION NIL 'VERSION NIL
                                   'BODY
                                   (DIRECTORYNAME))
                                   else (PACKFILENAME 'NAME 'SAVED-BUTTONS 'EXTENSION 'DATA 'VERSION NIL
                                   'BODY *BUTTONS-SAVE-DIRECTORY*))
        (if (LISTGET FILE 'HOST)
            then ;; Make sure we don't insert a directory where none's wanted (like on a Dorado DSK)
              (LISTPUT DFLT 'DIRECTORY NIL))
          (PACKFILENAME (NCONC FILE DFLT))])
  (* Koomen " 2-Dec-88 15:07")
```

(BUTTONS-CHANGE-LABEL

```
[LAMBDA (BUTTON NEWLABEL)
  (replace (BUTTON LABEL) of BUTTON with NEWLABEL)
  (WINDOWPROP BUTTON 'ICONIMAGE (BUTTONS-CREATE-ICON NEWLABEL))
  (if (OPENWP BUTTON)
      then (REDISPLAY-BUTTON BUTTON]))
  (* edited%: "18-Mar-87 22:25")
```

(BUTTONS-CREATE-ICON

```
[LAMBDA (LABEL)
  (DECLARE (GLOBALVARS *BUTTON-CLIPPING-REGION* *BUTTON-ICON* *BUTTONS-LABEL-FONT*))
  (PROG (BM DSP LW LH X Y W H)
    (SETQ BM (BITMAPCOPY *BUTTON-ICON*))
    (SETQ DSP (DSPCREATE BM))
    (DSPFONT *BUTTONS-LABEL-FONT* DSP)
    (DSPCLIPPINGREGION *BUTTON-CLIPPING-REGION* DSP)
    (SETQ X (fetch (REGION LEFT) of *BUTTON-CLIPPING-REGION*))
    (SETQ Y (fetch (REGION BOTTOM) of *BUTTON-CLIPPING-REGION*))
    (SETQ W (fetch (REGION WIDTH) of *BUTTON-CLIPPING-REGION*))
    (SETQ H (fetch (REGION HEIGHT) of *BUTTON-CLIPPING-REGION*))
    (SETQ LW (STRINGWIDTH LABEL *BUTTONS-LABEL-FONT*))
    (SETQ LH (FONTHEIGHT *BUTTONS-LABEL-FONT*))
    (add Y (FONTDESCENT *BUTTONS-LABEL-FONT*))
    (if (IGREATERP W LW)
        then (add X (LRSH (IDIFFERENCE W LW)
                          1)))
    (if (IGREATERP H LH)
        then (add Y (LRSH (IDIFFERENCE H LH)
                          1)))
    (MOVETO X Y DSP)
    (PRIN1 LABEL DSP)
    (RETURN BM))
  (* edited%: "18-Mar-87 22:11")
```

(BUTTONS-DRAW-BOX

```
[LAMBDA NIL
  (DECLARE (SPECVARS BB BL BR BT)
    (GLOBALVARS ScreenBitMap))
  (DRAWGRAYBOX BL BB BR BT ScreenBitMap GRAYSHADE])
  (* Koomen "26-Oct-89 08:12")
```

(BUTTONS-EDITE

```
[LAMBDA (FORM)
  (ALLOW.BUTTON.EVENTS)
  (EVAL.AS.PROCESS `[CAR (NLSETQ (EDITE , (KWOTE FORM)
  T]))
  ; Edited 18-Mar-2024 18:19 by mth
  (* edited%: "18-Mar-87 22:39")
```

(BUTTONS-EDIT-MENU

```
[LAMBDA NIL
  (DECLARE (GLOBALVARS *BUTTONS-EDIT-MENU* *BUTTONS-MENU-FONT*))
  (** If adding/changing menu entries, do (SETQ *BUTTONS-EDIT-MENU*))
  (OR *BUTTONS-EDIT-MENU* (SETQ *BUTTONS-EDIT-MENU*
    (create MENU
      TITLE _ "Button Control"
      ITEMS _ ['("Redisplay" 'REDISPLAY-BUTTON "Redisplay the button")
                ("Move" 'MOVE-BUTTON "Move the button")
                ("Copy" 'COPY-BUTTON "Create a copy of the button")
                ("Edit" 'EDIT-BUTTON-CONTENTS "Edit the label and the action of
                the button")
                (" NIL "Does nothing")
                ["Close" 'CLOSE-BUTTON "Close the button"
                  (SUBITEMS ("Close All Buttons" 'CLOSE-BUTTONS)
                  ["Delete" 'DELETE-BUTTON "Delete this button"
                    (SUBITEMS ("Delete All Buttons" 'DELETE-BUTTONS)
                    ])])]])
  (* Koomen " 2-Dec-88 14:50")
```

```

(" NIL "Does nothing")
("Create Button" 'CREATE-BUTTON "Create a new button")
(" NIL "Does nothing")
("Expose Buttons" 'EXPOSE-BUTTONS "Bring all buttons to the top")
("Align Buttons" 'ALIGN-BUTTONS "Align one or more buttons with
  this button")
(" NIL "Does nothing")
("Save Buttons" 'SAVE-BUTTONS "Save all current buttons in default
  datafile" (SUBITEMS ("Save Some Buttons"
    'SAVE-SOME-BUTTONS "Save some
    buttons in some datafile")))
("Restore Buttons" 'RESTORE-BUTTONS "Throw away current buttons,
  then restore saved buttons from default datafile"
  (SUBITEMS ("Load Some Buttons" 'LOAD-SOME-BUTTONS "Load
    some buttons from some datafile"]

MENUFONT _ *BUTTONS-MENU-FONT*
MENUOUTLINE SIZE _ 1
CENTERFLG _ T
CHANGEOFFSETFLG _ 'Y
MENUOFFSET _ '(-1 . 0])

```

(\BUTTONS-INIT

```

[LAMBDA NIL
  (* Koomen " 8-Jun-88 14:13")
  (* edited%: "18-Mar-87 22:02")
  (DECLARE (GLOBALVARS *ALL-BUTTONS* *BUTTONS-GRID-ORIGIN*))
  (\BUTTONS-SETPROP)
  (if (NULL *ALL-BUTTONS*)
    then (CREATE-BUTTON NIL NIL *BUTTONS-GRID-ORIGIN*))

```

(\BUTTONS-IO-EXIT

```

[LAMBDA (STREAM SAVING?)
  (* Koomen "18-Mar-87 16:19")
  (if (OPENP STREAM)
    then
      (* * Error occurred, so close and discard if saving.)
      (if SAVING?
        then (DELFILE (CLOSEF STREAM))
        else (CLOSEF STREAM)))
  NIL])

```

(\BUTTONS-OPEN-STREAM

```

[LAMBDA (FILENAME NEW? DATAVERSION)
  (* Koomen " 2-Dec-88 13:40")
  (PROG [(FILE (\BUTTONS-DATAFILE-NAME FILENAME DATAVERSION))
    (ACCESS (if NEW?
      then 'OUTPUT
      else 'INPUT))
    (RECOG (if NEW?
      then 'NEW
      else 'OLD))
    (PARAMETERS ' (SEQUENTIAL)
    (RETURN (if FILENAME
      then (OPENSTREAM FILE ACCESS RECOG PARAMETERS)
      else (CAR (NLSETQ (OPENSTREAM FILE ACCESS RECOG PARAMETERS))

```

(\BUTTONS-PROMPT-FOR-DATAFILE-NAME

```

[LAMBDA (PROMPTSTR)
  (* Koomen " 2-Dec-88 14:46")
  (DECLARE (GLOBALVARS PROMPTWINDOW))
  (PROMPTPRINT PROMPTSTR)
  (MKATOM (U-CASE (PROMPTFORWARD "
    " (LET [(FILENAME (\BUTTONS-DATAFILE-NAME (DIRECTORYNAME T)
      (if (NEQ FILENAME (\BUTTONS-DATAFILE-NAME))
        then FILENAME))
    NIL PROMPTWINDOW NIL NIL (CHARCODE (CR))

```

(\BUTTONS-READ

```

[LAMBDA (FILENAME)
  (* Koomen " 8-Jun-88 11:54")
  (DECLARE (SPECVARS FILERDTBL)
    (GLOBALVARS *DEFAULT-BUTTONPROPS*))
  (RESETLST
    (PROG (STREAM PROPS BUTTONSPECS DATAVERSION)
      (if (AND (NOT (LITATOM FILENAME))
        (NOT (STRINGP FILENAME)))
        then (SETQ FILENAME))
      [SETQ STREAM (OR (\BUTTONS-OPEN-STREAM FILENAME NIL (SETQ DATAVERSION 2))
        (\BUTTONS-OPEN-STREAM FILENAME NIL (SETQ DATAVERSION 1))
      (if (NULL STREAM)
        then (PROMPTPRINT "*** Buttons data file not found! ***")
        (RETURN))
      (RESETSAVE NIL (LIST (FUNCTION \BUTTONS-IO-EXIT)
        STREAM))
      (SETQ BUTTONSPECS (LISTP (READ STREAM FILERDTBL)))

```



```

do (SETQ NEWBL LASTMOUSEX)
  (SETQ NEWBB LASTMOUSEY)
  [if (NOT (KEYDOWNP 'LSHIFT))
    then [SETQ NEWBL (IPLUS GRIDXORIGIN (ITIMES GRIDWIDTH (IQUOTIENT NEWBL GRIDWIDTH))
      (SETQ NEWBB (IPLUS GRIDYORIGIN (ITIMES GRIDHEIGHT (IQUOTIENT NEWBB GRIDHEIGHT))
        (SETQ NEWBL (MAX 0 (MIN NEWBL MAXBL)))
        (SETQ NEWBB (MAX 0 (MIN NEWBB MAXBB)))
        (if (OR (NEQ NEWBL BL)
              (NEQ NEWBB BB))
          then (UNINTERRUPTABLY
                (\BUTTONS-DRAW-BOX) ; wipe old
                (SETQ BR (IPLUS BW (SETQ BL NEWBL)))
                (SETQ BT (IPLUS BH (SETQ BB NEWBB)))
                (\BUTTONS-DRAW-BOX) ; draw new
              )
        )]]

```

(**BUTTONS-WAIT-MOUSE**

```

[LAMBDA (BUTTON) ; (* Koomen " 8-Jun-88 08:53")
  (DECLARE (GLOBALVARS LASTMOUSEBUTTONS LASTMOUSEX LASTMOUSEY))
  (PROG [(REGION (WINDOWPROP BUTTON 'REGION)
    LP (GETMOUSESTATE)
      (if (NOT (INSIDEP REGION LASTMOUSEX LASTMOUSEY))
        then (RETURN)
        elseif (NOT (LASTMOUSESTATE UP))
        then (BLOCK)
              (GO LP)
        else (RETURN T])
  )

```

(* * The button icon)

```

(FILESLoad (SYSLOAD FROM LISPUSERS)
  ICONW)

```

(DEFINEQ

(**DROPSHADOW**

```

[LAMBDA (BM SHADOWOFFSET SHADOWSHADE) ; (* Koomen "31-Dec-86 12:47")
  (PROG (IMAGE (OFFSET (OR SHADOWOFFSET 4))
    (SHADE (OR SHADOWSHADE 42405))
    (MASK (BITMAPCOPY BM))
    (SHADOW (BITMAPCOPY BM)))
  (SETQ IMAGE (BITMAPCREATE (PLUS OFFSET (BITMAPWIDTH BM))
    (PLUS OFFSET (BITMAPHEIGHT BM))
    (BITSPERPIXEL BM)))

  (* * Compute mask * *)

  (BLTSHADE BLACKSHADE MASK)
  (CLEAR-MASK-OUTLINE MASK BM)

  (* * Fill shadow * *)

  (BLTSHADE SHADE SHADOW)

  (* * Remove outline from shadow * *)

  (BITBLT MASK NIL NIL SHADOW NIL NIL NIL NIL 'INVERT 'ERASE)

  (* * Put shadow in bottom-right corner of image * *)

  (BITBLT SHADOW NIL NIL IMAGE OFFSET NIL NIL NIL 'INPUT 'REPLACE)

  (* * Put original in top-left corner of image * *)

  (BITBLT MASK NIL NIL IMAGE NIL OFFSET NIL NIL 'INPUT 'ERASE)
  (BITBLT BM NIL NIL IMAGE NIL OFFSET NIL NIL 'INPUT 'PAINT)
  (RETURN IMAGE])

```

(**ICONMASK**

```

[LAMBDA (ICON) ; (* Koomen "31-Dec-86 12:40")
  (PROG ((MASK (BITMAPCOPY ICON)))
  (BITBLT ICON NIL NIL MASK NIL NIL NIL NIL 'INVERT 'REPLACE)
  (CLEAR-MASK-OUTLINE MASK ICON)
  (RETURN MASK])

```

(**CLEAR-MASK-OUTLINE**

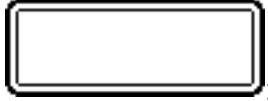
```

[LAMBDA (MASK BM) ; (* Koomen "31-Dec-86 12:35")

  (* * Make outline of MASK same as BM * *)

```

```
(for I from 0 to (SUB1 (BITMAPWIDTH BM)) bind (BMH _ (SUB1 (BITMAPHEIGHT BM)))
  do (for J from 0 to BMH by 1 while (ZEROP (BITMAPBIT BM I J)) do (BITMAPBIT MASK I J 0))
    (for J from BMH to 0 by -1 while (ZEROP (BITMAPBIT BM I J)) do (BITMAPBIT MASK I J 0))
)

(RPAQQ *BUTTON-BITMAP* )

(RPAQQ? *BUTTON-INVERT-REGION* '(6 10 85 25))
(RPAQQ? *BUTTON-CLIPPING-REGION* '(7 11 83 23))
(RPAQQ? *BUTTON-ICON* (DROPSHADOW *BUTTON-BITMAP*))
(RPAQQ? *BUTTON-ICON-MASK* (ICONMASK *BUTTON-ICON*))
(ADDTOVAR BackgroundMenuCommands ("Button Control" '(EDIT-BUTTON)
                                     "Manipulate action buttons"))
(RPAQQ BackgroundMenu NIL)
(\BUTTONS-INIT)
(DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVERS
(ADDTOVAR NLAMA )
(ADDTOVAR NLAML )
(ADDTOVAR LAMA BUTTON-LABEL BUTTON-ACTION BUTTONSPROP)
)
(PUTPROPS BUTTONS COPYRIGHT ("Xerox Corporation" 1986 1987 1988 1989 2024))
```

FUNCTION INDEX

ALIGN-BUTTONS	2	RESTORE-BUTTONS	5
BUTTON-ACTION	2	SAVE-BUTTONS	5
BUTTON-LABEL	2	SAVE-SOME-BUTTONS	5
BUTTONP	2	\BUTTONS-BUTTONEVENTFN	6
BUTTONSPROP	2	\BUTTONS-CHANGE-LABEL	7
CLEAR-MASK-OUTLINE	10	\BUTTONS-CREATE-ICON	7
CLOSE-BUTTON	3	\BUTTONS-DATAFILE-NAME	7
CLOSE-BUTTONS	3	\BUTTONS-DRAW-BOX	7
COPY-BUTTON	3	\BUTTONS-EDIT-MENU	7
CREATE-BUTTON	3	\BUTTONS-EDITE	7
DELETE-BUTTON	3	\BUTTONS-INIT	8
DELETE-BUTTONS	3	\BUTTONS-IO-EXIT	8
DROPSHADOW	10	\BUTTONS-OPEN-STREAM	8
EDIT-BUTTON	3	\BUTTONS-PROMPT-FOR-DATAFILE-NAME	8
EDIT-BUTTON-CONTENTS	4	\BUTTONS-READ	8
EXECUTE-BUTTON	4	\BUTTONS-SETPROP	9
EXPOSE-BUTTONS	4	\BUTTONS-SHOW	9
ICONMASK	10	\BUTTONS-SHOW-EXEC	9
LOAD-SOME-BUTTONS	4	\BUTTONS-TRACK-MOUSE	9
MOVE-BUTTON	4	\BUTTONS-WAIT-MOUSE	10
REDISPLAY-BUTTON	5		

VARIABLE INDEX

ALL-BUTTONS	6	*BUTTONS-DATAVERSION*	6	*BUTTONS-LABEL-FONT*	6
BUTTON-BITMAP	11	*BUTTONS-DEFAULT-ACTION*	6	*BUTTONS-MENU-FONT*	6
BUTTON-CLIPPING-REGION	11	*BUTTONS-DEFAULT-LABEL*	6	*BUTTONS-SAVE-DIRECTORY*	6
BUTTON-ICON	11	*BUTTONS-EDIT-MENU*	6	*DEFAULT-BUTTONPROPS*	6
BUTTON-ICON-MASK	11	*BUTTONS-EDIT-SHADE*	6	BackgroundMenu	11
BUTTON-INVERT-REGION	11	*BUTTONS-EXEC-SHADE*	6	BackgroundMenuCommands	11
BUTTONPROPS	6	*BUTTONS-GRID-ORIGIN*	6		

PROPERTY INDEX

BUTTON-ACTION	6	BUTTON-LABEL	6	BUTTONS	6	BUTTONSPROP	6
---------------------	---	--------------------	---	---------------	---	-------------------	---

RECORD INDEX

BUTTON	1
--------------	---
