```
;;
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(RPAQQ EDITBITMAPCOMS
       [(FNS ADD.BORDER.TO.BITMAP BIT.IN.COLUMN BIT.IN.ROW EDIT.BITMAP EDIT.BITMAP.REAL FROM.SCREEN.BITMAP
             GET.EDIT.BITMAP.MENU INTERACT&SHIFT.BITMAP.LEFT INTERACT&SHIFT.BITMAP.RIGHT
             INTERACT&SHIFT.BITMAP.DOWN INTERACT&SHIFT.BITMAP.UP INTERACT&ADD.BORDER.TO.BITMAP INVERT.BITMAP.B/W
             INVERT.BITMAP.DIAGONALLY INVERT.BITMAP.HORIZONTALLY INVERT.BITMAP.VERTICALLY ROTATE.BITMAP.LEFT
             ROTATE.BITMAP.RIGHT SHIFT.BITMAP.DOWN SHIFT.BITMAP.LEFT SHIFT.BITMAP.RIGHT SHIFT.BITMAP.UP
             TRIM.BITMAP)
        (VARS (EDIT.BITMAP.MENU))
        (GLOBALVARS EDIT.BITMAP.MENU PROMPTWINDOW BLACKSHADE)
        (FILES READNUMBER)
        (P (FONTCREATE '(GACHA 12 BOLD])

(DEFINEQ
```

(**ADD.BORDER.TO.BITMAP**
```
  [LAMBDA (BITMAP NBITS TEXTURE)                              (* DAHJr "23-APR-83 12:23")
    (PROG ((WIDTH (fetch (BITMAP BITMAPWIDTH) of BITMAP))
           (HEIGHT (fetch (BITMAP BITMAPHEIGHT) of BITMAP))
           (REAL.NBITS (OR NBITS 2))
           NEW.BITMAP)
          [SETQ NEW.BITMAP (BITMAPCREATE (IPLUS WIDTH (ITIMES REAL.NBITS 2))
                                         (IPLUS HEIGHT (ITIMES REAL.NBITS 2]
          (BITBLT NIL NIL NIL NEW.BITMAP NIL NIL NIL NIL 'TEXTURE 'REPLACE (OR TEXTURE WHITESHADE))
          (BITBLT BITMAP 0 0 NEW.BITMAP REAL.NBITS REAL.NBITS WIDTH HEIGHT 'INPUT 'REPLACE)
          (RETURN NEW.BITMAP])
```

(**BIT.IN.COLUMN**
```
  [LAMBDA (BITMAP COLUMN)                                     (* AJB "11-Oct-85 16:07")
    (for X from 0 to (SUB1 (fetch (BITMAP BITMAPHEIGHT) of BITMAP)) when (EQ 1 (BITMAPBIT BITMAP COLUMN X))
       DO (RETURN T])
```

(**BIT.IN.ROW**
```
  [LAMBDA (BITMAP ROW)                                        (* AJB "11-Oct-85 16:11")
    (for X from 0 to (SUB1 (fetch (BITMAP BITMAPWIDTH) of BITMAP)) when (EQ 1 (BITMAPBIT BITMAP X ROW))
       DO (RETURN T])
```

(**EDIT.BITMAP**
```
  [LAMBDA (OBJECT)                                            (* AJB " 7-Oct-86 15:46")
    (PROG (NEW.OBJECT BM)
          (RETURN (COND
                    ((NULL OBJECT)
                     (EDIT.BITMAP.REAL (BITMAPCREATE 50 50)))
                    ((LITATOM OBJECT)
                     (SETQ BM (EVAL OBJECT))
                     (SETQ NEW.OBJECT (EDIT.BITMAP BM))
                     (SET OBJECT NEW.OBJECT)
                     OBJECT)
                    ((BITMAPP OBJECT)
                     (EDIT.BITMAP.REAL OBJECT))
                    ((CURSORP OBJECT)
                     (SETQ NEW.OBJECT (EDIT.BITMAP.REAL (fetch (CURSOR CUIMAGE) of OBJECT)))
                     (CURSORCREATE NEW.OBJECT (fetch (CURSOR CUHOTSPOTX) of OBJECT)
                            (fetch (CURSOR CUHOTSPOTY) of OBJECT)))
                    (T (ERROR "Object of unrecognized type: " OBJECT])
```

(**EDIT.BITMAP.REAL**
```
  [LAMBDA (BITMAP)                                            (* rrb "11-AUG-83 13:31")
    (PROG (NEW.BITMAP COMMAND.MENU DONE COMMAND PREVIOUS.BITMAP NAME TEMP X Y)
          (SETQ NEW.BITMAP (BITMAPCOPY BITMAP))
          (SETQ COMMAND.MENU (GET.EDIT.BITMAP.MENU))
          [until DONE do (SETQ COMMAND (MENU COMMAND.MENU))
                         (CLEARW PROMPTWINDOW)
                         (SELECTQ COMMAND
                             (NIL NIL)
                             (QUIT (SETQ DONE T))
                             (UNDO (COND
                                     (PREVIOUS.BITMAP (SETQ NEW.BITMAP (CAR PREVIOUS.BITMAP))
```

```
                                        (SETQ PREVIOUS.BITMAP (CDR PREVIOUS.BITMAP)))
                             (T (printout PROMPTWINDOW T "Can't: no previous bitmap saved"))))
                    (PROGN (SETQ PREVIOUS.BITMAP (CONS NEW.BITMAP PREVIOUS.BITMAP))
                           (SETQ NEW.BITMAP (SELECTQ COMMAND
                                              (HAND.EDIT (EDITBM NEW.BITMAP))
                                              (FROM.SCREEN (FROM.SCREEN.BITMAP))
                                              (TRIM (TRIM.BITMAP NEW.BITMAP))
                                              (INVERT.HORIZONTALLY
                                                  (INVERT.BITMAP.HORIZONTALLY NEW.BITMAP))
                                              (INVERT.VERTICALLY
                                                  (INVERT.BITMAP.VERTICALLY NEW.BITMAP))
                                              (INVERT.DIAGONALLY
                                                  (INVERT.BITMAP.DIAGONALLY NEW.BITMAP))
                                              (ROTATE.BITMAP.LEFT
                                                  (ROTATE.BITMAP.LEFT NEW.BITMAP))
                                              (ROTATE.BITMAP.RIGHT
                                                  (ROTATE.BITMAP.RIGHT NEW.BITMAP))
                                              (SHIFT.LEFT (INTERACT&SHIFT.BITMAP.LEFT NEW.BITMAP))
                                              (SHIFT.RIGHT (INTERACT&SHIFT.BITMAP.RIGHT NEW.BITMAP))
                                              (SHIFT.DOWN (INTERACT&SHIFT.BITMAP.DOWN NEW.BITMAP))
                                              (SHIFT.UP (INTERACT&SHIFT.BITMAP.UP NEW.BITMAP))
                                              (INTERCHANGE.BLACK/WHITE
                                                  (INVERT.BITMAP.B/W NEW.BITMAP))
                                              (ADD.BORDER (INTERACT&ADD.BORDER.TO.BITMAP NEW.BITMAP)
)
                                              (ERROR "Unrecognized command" COMMAND]
            (RETURN NEW.BITMAP])
```

(**FROM.SCREEN.BITMAP**
```
  [LAMBDA NIL                                              (* kbr%: "26-Feb-86 00:16")
    (PROG (SCREENREGION SCREEN REGION NEW.BITMAP)
          (printout PROMPTWINDOW T "Indicate a region from which to take bits")
          (SETQ SCREENREGION (GETSCREENREGION))
          (SETQ SCREEN (fetch (SCREENREGION SCREEN) of SCREENREGION))
          (SETQ REGION (fetch (SCREENREGION REGION) of SCREENREGION))
          [SETQ NEW.BITMAP (BITMAPCREATE (fetch (REGION WIDTH) of REGION)
                                         (fetch (REGION HEIGHT) of REGION)
                                         (BITSPERPIXEL (SCREENBITMAP SCREEN]
          (BITBLT (SCREENBITMAP SCREEN)
                  (fetch (REGION LEFT) of REGION)
                  (fetch (REGION BOTTOM) of REGION)
                  NEW.BITMAP 0 0 (fetch (REGION WIDTH) of REGION)
                  (fetch (REGION HEIGHT) of REGION)
                  'INPUT
                  'REPLACE)
          (RETURN NEW.BITMAP])
```

(**GET.EDIT.BITMAP.MENU**
```
  [LAMBDA NIL                                              (* DAHJr " 7-JUL-83 17:13")
                                                           (* EVAL THIS WHEN CHANGING THE MENU
                                                           (SETQ EDIT.BITMAP.MENU))

    (OR EDIT.BITMAP.MENU
        (SETQ EDIT.BITMAP.MENU
          (create MENU
                  TITLE _ "Operations on bitmaps"
                  ITEMS _ '(HAND.EDIT FROM.SCREEN TRIM INVERT.HORIZONTALLY INVERT.VERTICALLY INVERT.DIAGONALLY
                                      ROTATE.BITMAP.LEFT ROTATE.BITMAP.RIGHT SHIFT.LEFT SHIFT.RIGHT SHIFT.DOWN
                                      SHIFT.UP INTERCHANGE.BLACK/WHITE ADD.BORDER UNDO QUIT)
                  CENTERFLG _ T
                  CHANGEOFFSETFLG _ T])
```

(**INTERACT&SHIFT.BITMAP.LEFT**
```
  [LAMBDA (BITMAP)                                         (* edited%: "17-DEC-82 08:31")
    (PROG (NBITS NEW.BITMAP)
          (SETQ NBITS (RNUMBER "Number of bits to shift the bitmap left: "))
          (RETURN (SHIFT.BITMAP.LEFT BITMAP NBITS])
```

(**INTERACT&SHIFT.BITMAP.RIGHT**
```
  [LAMBDA (BITMAP)                                         (* edited%: "17-DEC-82 08:31")
    (PROG (NBITS NEW.BITMAP)
          (SETQ NBITS (RNUMBER "Number of bits to shift the bitmap right: "))
          (RETURN (SHIFT.BITMAP.RIGHT BITMAP NBITS])
```

(**INTERACT&SHIFT.BITMAP.DOWN**
```
  [LAMBDA (BITMAP)                                         (* DAHJr "23-MAR-83 14:39")
    (PROG (NBITS)
          (SETQ NBITS (RNUMBER "Number of bits to shift the bitmap down: "))
          (RETURN (SHIFT.BITMAP.DOWN BITMAP NBITS])
```

(**INTERACT&SHIFT.BITMAP.UP**
```
  [LAMBDA (BITMAP)                                         (* edited%: "17-DEC-82 08:31")
```

```
      (PROG (NBITS NEW.BITMAP)
            (SETQ NBITS (RNUMBER "Number of bits to shift the bitmap up: "))
            (RETURN (SHIFT.BITMAP.UP BITMAP NBITS])
```

(**INTERACT&ADD.BORDER.TO.BITMAP**
```
  [LAMBDA (BITMAP)                                              (* rrb "24-Jul-84 18:12")
    (PROG (NBITS TEXTURE)
          (COND
             ((EQ (SETQ NBITS (RNUMBER "Number of bits in the border: "))
                  0)
              (RETURN BITMAP))
             ((GREATERP 0 NBITS)
              (PROMPTPRINT "Can't add a negative border.")
              (RETURN BITMAP))
             ((GREATERP NBITS 500)
              (PROMPTPRINT "Can't add a border of more than 500.")
              (RETURN BITMAP)))
          (SETQ TEXTURE (EDITSHADE))
          (RETURN (ADD.BORDER.TO.BITMAP BITMAP NBITS TEXTURE])
```

(**INVERT.BITMAP.B/W**
```
  [LAMBDA (BITMAP)                                              (* HK "12-JUL-82 11:19")
    (PROG ((WIDTH (fetch (BITMAP BITMAPWIDTH) of BITMAP))
           (HEIGHT (fetch (BITMAP BITMAPHEIGHT) of BITMAP))
           (NEW.BITMAP (BITMAPCOPY BITMAP)))
          (BITBLT BITMAP 0 0 NEW.BITMAP 0 0 WIDTH HEIGHT 'TEXTURE 'INVERT BLACKSHADE)
          (RETURN NEW.BITMAP])
```

(**INVERT.BITMAP.DIAGONALLY**
```
  [LAMBDA (BITMAP)                                              (* HK "12-JUL-82 16:02")
    (PROG (NEW.BITMAP (WIDTH (fetch (BITMAP BITMAPWIDTH) of BITMAP))
                      (HEIGHT (fetch (BITMAP BITMAPHEIGHT) of BITMAP)))
          (SETQ NEW.BITMAP (BITMAPCREATE HEIGHT WIDTH))
          [for X from 0 to (SUB1 WIDTH) do (for Y from 0 to (SUB1 HEIGHT) do (BITMAPBIT NEW.BITMAP Y X
                                                                                         (BITMAPBIT BITMAP X Y]
          (RETURN NEW.BITMAP])
```

(**INVERT.BITMAP.HORIZONTALLY**
```
  [LAMBDA (BITMAP)                                              (* HK "12-JUL-82 11:28")
    (PROG ((WIDTH (fetch (BITMAP BITMAPWIDTH) of BITMAP))
           (HEIGHT (fetch (BITMAP BITMAPHEIGHT) of BITMAP))
           (NEW.BITMAP (BITMAPCOPY BITMAP)))
          [for X1 from 0 to (SUB1 (IQUOTIENT WIDTH 2)) do (for Y from 0 to (SUB1 HEIGHT)
                                                            bind (X2 _ (IDIFFERENCE (SUB1 WIDTH)
                                                                                    X1))
                                                            do (BITMAPBIT NEW.BITMAP X1 Y (BITMAPBIT BITMAP X2 Y
                                                                                           ))
                                                               (BITMAPBIT NEW.BITMAP X2 Y (BITMAPBIT BITMAP X1 Y
                                                                                           ]
          (RETURN NEW.BITMAP])
```

(**INVERT.BITMAP.VERTICALLY**
```
  [LAMBDA (BITMAP)                                              (* HK "12-JUL-82 11:33")
    (PROG ((WIDTH (fetch (BITMAP BITMAPWIDTH) of BITMAP))
           (HEIGHT (fetch (BITMAP BITMAPHEIGHT) of BITMAP))
           (NEW.BITMAP (BITMAPCOPY BITMAP)))
          [for X1 from 0 to (SUB1 (IQUOTIENT HEIGHT 2)) do (for Y from 0 to (SUB1 WIDTH)
                                                             bind (X2 _ (IDIFFERENCE (SUB1 HEIGHT)
                                                                                     X1))
                                                             do (BITMAPBIT NEW.BITMAP Y X1 (BITMAPBIT BITMAP Y
                                                                                            X2))
                                                                (BITMAPBIT NEW.BITMAP Y X2 (BITMAPBIT BITMAP Y
                                                                                            X1]
          (RETURN NEW.BITMAP])
```

(**ROTATE.BITMAP.LEFT**
```
  [LAMBDA (BITMAP)                                              (* HK "12-JUL-82 11:48")
    (PROG (NEW.BITMAP (WIDTH (fetch (BITMAP BITMAPWIDTH) of BITMAP))
                      (HEIGHT (fetch (BITMAP BITMAPHEIGHT) of BITMAP)))
          (SETQ NEW.BITMAP (BITMAPCREATE HEIGHT WIDTH))
          [for Y from 0 to (SUB1 HEIGHT) do (for X from 0 to (SUB1 WIDTH) bind (Y1 _ (IDIFFERENCE (SUB1 HEIGHT)
                                                                                                  Y))
                                              do (BITMAPBIT NEW.BITMAP Y1 X (BITMAPBIT BITMAP X Y]
          (RETURN NEW.BITMAP])
```

(**ROTATE.BITMAP.RIGHT**
```
  [LAMBDA (BITMAP)                                              (* HK "12-JUL-82 11:50")
    (PROG (NEW.BITMAP (WIDTH (fetch (BITMAP BITMAPWIDTH) of BITMAP))
                      (HEIGHT (fetch (BITMAP BITMAPHEIGHT) of BITMAP)))
          (SETQ NEW.BITMAP (BITMAPCREATE HEIGHT WIDTH))
```

```
              [for X from 0 to (SUB1 WIDTH) do (for Y from 0 to (SUB1 HEIGHT) bind (X1 _ (IDIFFERENCE (SUB1 WIDTH)
                                                                                                      X))
                                                            do (BITMAPBIT NEW.BITMAP Y X1 (BITMAPBIT BITMAP X Y]
              (RETURN NEW.BITMAP))
```

(**SHIFT.BITMAP.DOWN**
```
   [LAMBDA (BITMAP NBITS)                                  (* edited%: "21-OCT-82 16:20")
     (PROG ((WIDTH (fetch (BITMAP BITMAPWIDTH) of BITMAP))
            (HEIGHT (fetch (BITMAP BITMAPHEIGHT) of BITMAP))
            NEW.BITMAP)
           (SETQ NEW.BITMAP (BITMAPCREATE WIDTH (IPLUS HEIGHT NBITS)))
           (BITBLT BITMAP 0 0 NEW.BITMAP 0 0 WIDTH HEIGHT 'INPUT 'REPLACE)
           (RETURN NEW.BITMAP))
```

(**SHIFT.BITMAP.LEFT**
```
   [LAMBDA (BITMAP NBITS)                                  (* edited%: "21-OCT-82 16:16")
     (PROG ((WIDTH (fetch (BITMAP BITMAPWIDTH) of BITMAP))
            (HEIGHT (fetch (BITMAP BITMAPHEIGHT) of BITMAP))
            NEW.BITMAP)
           (SETQ NEW.BITMAP (BITMAPCREATE (IPLUS WIDTH NBITS)
                                          HEIGHT))
           (BITBLT BITMAP 0 0 NEW.BITMAP 0 0 WIDTH HEIGHT 'INPUT 'REPLACE)
           (RETURN NEW.BITMAP))
```

(**SHIFT.BITMAP.RIGHT**
```
   [LAMBDA (BITMAP NBITS)                                  (* edited%: "21-OCT-82 16:17")
     (PROG ((WIDTH (fetch (BITMAP BITMAPWIDTH) of BITMAP))
            (HEIGHT (fetch (BITMAP BITMAPHEIGHT) of BITMAP))
            NEW.BITMAP)
           (SETQ NEW.BITMAP (BITMAPCREATE (IPLUS WIDTH NBITS)
                                          HEIGHT))
           (BITBLT BITMAP 0 0 NEW.BITMAP NBITS 0 WIDTH HEIGHT 'INPUT 'REPLACE)
           (RETURN NEW.BITMAP))
```

(**SHIFT.BITMAP.UP**
```
   [LAMBDA (BITMAP NBITS)                                  (* edited%: "21-OCT-82 16:18")
     (PROG ((WIDTH (fetch (BITMAP BITMAPWIDTH) of BITMAP))
            (HEIGHT (fetch (BITMAP BITMAPHEIGHT) of BITMAP))
            NEW.BITMAP)
           (SETQ NEW.BITMAP (BITMAPCREATE WIDTH (IPLUS HEIGHT NBITS)))
           (BITBLT BITMAP 0 0 NEW.BITMAP 0 NBITS WIDTH HEIGHT 'INPUT 'REPLACE)
           (RETURN NEW.BITMAP))
```

(**TRIM.BITMAP**
```
   [LAMBDA (BITMAP)                                        (* HK "20-JUL-82 15:59")
     (PROG ((WIDTH (fetch (BITMAP BITMAPWIDTH) of BITMAP))
            (HEIGHT (fetch (BITMAP BITMAPHEIGHT) of BITMAP))
            LEFT RIGHT BOTTOM TOP NEW.BITMAP)
           (SETQ LEFT (for X from 0 to (SUB1 WIDTH) thereis (BIT.IN.COLUMN BITMAP X)))
           (SETQ RIGHT (for X from (SUB1 WIDTH) to 0 by −1 thereis (BIT.IN.COLUMN BITMAP X)))
           (SETQ BOTTOM (for X from 0 to (SUB1 HEIGHT) thereis (BIT.IN.ROW BITMAP X)))
           (SETQ TOP (for X from (SUB1 HEIGHT) to 0 by −1 thereis (BIT.IN.ROW BITMAP X)))
           (OR (AND LEFT RIGHT BOTTOM TOP)
               (HELP))
           [SETQ NEW.BITMAP (BITMAPCREATE (ADD1 (IDIFFERENCE RIGHT LEFT))
                                          (ADD1 (IDIFFERENCE TOP BOTTOM]
           (BITBLT BITMAP LEFT BOTTOM NEW.BITMAP 0 0 (ADD1 (IDIFFERENCE RIGHT LEFT))
                   (ADD1 (IDIFFERENCE TOP BOTTOM))
                   'INPUT
                   'REPLACE)
           (RETURN NEW.BITMAP))
)

(RPAQQ EDIT.BITMAP.MENU NIL)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS EDIT.BITMAP.MENU PROMPTWINDOW BLACKSHADE)
)

(FILESLOAD READNUMBER)

(FONTCREATE '(GACHA 12 BOLD))

(PUTPROPS EDITBITMAP COPYRIGHT ("Venue & Xerox Corporation" 1983 1984 1985 1986 1990))
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FUNCTION INDEX

VARIABLE INDEX