```
(RPAQQ COLORDEMOCOMS
       [(* * COLORDEMO -- Color demonstration programs. By Richard Burton and Kelly Roach. *)
        (COMS (* Color Demo. Stuff needed to run through different demos, but not the individual demos
                  themselves. *)
              [VARS (CD.DEMOS '(KINETICDEMO VINEDEMO RAINING MODARTDEMO STARBURSTDEMO COLORPEANODEMO BUBBLEDEMO
                                      OVERPAINTDEMO TILEDEMO TUNNELDEMO POLYGONSDEMO]
              (INITVARS (CD.NEWDEMO NIL)
                      (CD.STOPDATE 0)
                      (CD.TIMECELL NIL)
                      (CD.WINDOW1 NIL)
                      (CD.WINDOW2 NIL)
                      (CD.WINDOW3 NIL)
                      (CD.WINDOW4 NIL)
                      (CD.MENU NIL)
                      (CD.COLORMAPS NIL))
              (GLOBALVARS CD.DEMOS CD.NEWDEMO CD.STOPDATE)
              (FNS COLORDEMO CD.INIT CD.INIT.COLORMAPS CD.INIT.WINDOWS CD.INIT.MENU CD.NEXTELEMENT
                      CD.RANDELEMENT CD.CHOOSEDEMO CD.QUITP))
        (COMS (* Tunnel demo. *)
              (FNS CD.MINESHAFT CD.POINTTEST)
              (FNS WELLDEMO TUNNELDEMO CD.SQUARETUNNEL CD.CIRCULARTUNNEL))
        (COMS (* Junk fns. *)
              (FNS CD.ROTATEIT)
              (FNS COLORMAPOF COLORMAPCOPY COLORFILL COLORBACKGROUND COLORFILLAREA))
        (COMS (* Walk demos)
              (FNS WALKDEMO CD.WALKBM CD.RANDCOLORMAP)
              [INITVARS CD.MAXWALK CD.MINWALK CD.RANDCOLORPROB (CD.RANDOM.COLORMAP NIL)
                      (CD.RAINBOW.COLORMAP NIL)
                      (CD.8BITBMEXP (LIST (HARRAY 60)))
                      (CD.4BITBMEXP (LIST (HARRAY 60]
              (GLOBALVARS CD.8BITBMEXP CD.4BITBMEXP CD.RANDOM.COLORMAP CD.RAINBOW.COLORMAP))
        (COMS (* Kinetic demos *)
              (FNS KINETICDEMO CD.DEMOKINETIC CD.CIRKIN)
              (VARS (CD.KINETICWAITTIME 150))
              (GLOBALVARS CD.KINETICWAITTIME))
        (COMS (* Vine demo *)
              (FNS VINEDEMO CD.INRANGE))
        (COMS (* Raining demo *)
              (FNS RAINING CD.PUTDROPS CD.DOCOLORDROP CD.RAININGCOLORMAP))
        (COMS (* Modart demo *)
              (FNS MODARTDEMO))
        (COMS (* Starburst demo *)
              (FNS STARBURSTDEMO CD.STARBURST CD.STARSHINE))
        (COMS (* Peano demo *)
              (FILES (FROM LISPUSERS)
                      PEANO)
              (FNS COLORPEANODEMO))
        (COMS (* Bubble demo *)
              (FNS BUBBLEDEMO CD.BUBBLE))
        (COMS (* Overpaint demo *)
              (FNS OVERPAINTDEMO)
              (VARS (CD.OVERPAINTBITMAPS)))
        (COMS (* Tile demo *)
              (INITVARS (CD.TILEBITMAPS NIL))
              (FNS TILEDEMO))
        (COMS (* Polygons demo *)
              (FILES (FROM LISPUSERS)
                      COLORPOLYGONS)
              (FNS POLYGONSDEMO))
        (FILES COLOR)
        (COMS (* Color font profile *)
              (VARS COLORFONTPROFILE)
              (P (FONTPROFILE COLORFONTPROFILE)
                 (* Create color fonts now instead of later. COLOR should already be LOADed. *)
                 (for FONTCLASS in (LIST DEFAULTFONT BOLDFONT LITTLEFONT BIGFONT)
                      do
                      (FONTCREATE FONTCLASS NIL NIL NIL '8DISPLAY))
                 (FONTCREATE 'TIMESROMAND 36 NIL NIL NIL '8DISPLAY])


        (* * COLORDEMO -- Color demonstration programs. By Richard Burton and Kelly Roach.
        *)
```

```
                    (* * Color Demo. Stuff needed to run through different demos, but not the individual demos themselves.
                    *)

(RPAQQ CD.DEMOS (KINETICDEMO VINEDEMO RAINING MODARTDEMO STARBURSTDEMO COLORPEANODEMO BUBBLEDEMO OVERPAINTDEMO
                        TILEDEMO TUNNELDEMO POLYGONSDEMO))

(RPAQ? CD.NEWDEMO NIL)

(RPAQ? CD.STOPDATE 0)

(RPAQ? CD.TIMECELL NIL)

(RPAQ? CD.WINDOW1 NIL)

(RPAQ? CD.WINDOW2 NIL)

(RPAQ? CD.WINDOW3 NIL)

(RPAQ? CD.WINDOW4 NIL)

(RPAQ? CD.MENU NIL)

(RPAQ? CD.COLORMAPS NIL)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS CD.DEMOS CD.NEWDEMO CD.STOPDATE)
)

(DEFINEQ
```

(**COLORDEMO**
```
  [LAMBDA NIL                                                            (* kbr%: " 3-Sep-86 21:19")
    (DECLARE (GLOBALVARS CD.DEMOS CD.NEWDEMO CD.STOPDATE CD.COLORMAPS))
    (PROG (WINDOWS WINDOW DEMO BITSPERPIXEL BITMAP)
          (COND
            ((NULL CD.MENU)
             (CD.INIT)))
          [COND
            [(NULL (WFROMMENU CD.MENU))
             (ADDMENU CD.MENU NIL (GETBOXPOSITION (fetch (MENU IMAGEWIDTH) of CD.MENU)
                                                  (fetch (MENU IMAGEHEIGHT) of CD.MENU]
            ((NOT (OPENWP (WFROMMENU CD.MENU)))
             (OPENW (WFROMMENU CD.MENU]
          (SETQ WINDOWS (LIST CD.WINDOW1 CD.WINDOW2 CD.WINDOW3 CD.WINDOW4))
          [do (SETQ WINDOW (CD.NEXTELEMENT WINDOW WINDOWS))
              (SETQ DEMO (OR CD.NEWDEMO (CD.NEXTELEMENT DEMO CD.DEMOS)))
              (SETQ CD.NEWDEMO NIL)
              (COND
                ((EQ DEMO 'STOP)
                 (RETURN)))
              (SETQ CD.STOPDATE (IPLUS (IDATE)
                                       60))

                    (* Each DEMO takes a WAIT argument telling how long to run and an optional WINDOW argument telling which window to
                    use. WAIT can be defaulted to NIL. *)

              (SCREENCOLORMAP (CD.RANDELEMENT CD.COLORMAPS))
              (APPLY* DEMO NIL WINDOW)
              (COND
                ((ILESSP (LENGTH CD.TILEBITMAPS)
                         10)
                 (SETQ BITSPERPIXEL (BITSPERPIXEL (COLORSCREENBITMAP)))
                 (SETQ BITMAP (BITMAPCREATE 100 100 BITSPERPIXEL))
                 (BITBLT WINDOW NIL NIL BITMAP)
                 (push CD.TILEBITMAPS BITMAP]
          (CLOSEW (WFROMMENU CD.MENU))
```

(**CD.INIT**
```
  [LAMBDA NIL                                                            (* kbr%: " 3-Sep-86 19:06")
    (PROG NIL
          (CD.INIT.COLORMAPS)
          (CD.INIT.WINDOWS)
          (CD.INIT.MENU])
```

(**CD.INIT.COLORMAPS**
```
  [LAMBDA NIL                                                            (* kbr%: " 3-Sep-86 20:39")
    (PROG (BITSPERPIXEL MAXCOLOR)
          (SETQ BITSPERPIXEL (BITSPERPIXEL (COLORSCREENBITMAP)))
          (SETQ MAXCOLOR (MAXIMUMCOLOR BITSPERPIXEL))
          (SETQ CD.CMYCOLORMAP (SELECTQ BITSPERPIXEL
                                        (4 (CMYCOLORMAP 2 1 1 4))
                                        (8 (CMYCOLORMAP 3 2 2 8))
                                        NIL))
```

```
            (SETQ CD.RGBCOLORMAP (SELECTQ BITSPERPIXEL
                                   (4 (CMYCOLORMAP 2 1 1 4))
                                   (8 (RGBCOLORMAP 3 2 2 8))
                                   NIL))
            (SETQ CD.RANDOM.COLORMAP (COLORMAPCREATE (for COLOR from 0 to MAXCOLOR
                                               collect (create RGB
                                                              RED _ (RAND 0 255)
                                                              GREEN _ (RAND 0 255)
                                                              BLUE _ (RAND 0 255)))
                                           BITSPERPIXEL))
            [PROGN (SETQ CD.RAINBOW.COLORMAP (RAINBOWMAP BITSPERPIXEL))
                  (for COLOR from (RAND 0 15) to MAXCOLOR by 16 do (SETA CD.RAINBOW.COLORMAP COLOR
                                                                (create RGB
                                                                       RED _ (RAND 0 255)
                                                                       GREEN _ (RAND 0 255)
                                                                       BLUE _ (RAND 0 255]
            (SETQ CD.COLORMAPS (LIST CD.CMYCOLORMAP CD.RGBCOLORMAP CD.RANDOM.COLORMAP CD.RAINBOW.COLORMAP))
            (RETURN CD.COLORMAPS])
```

(CD.INIT.WINDOWS
```
  [LAMBDA NIL                                               (* kbr%: " 3-Sep-86 18:34")
    (PROG (CSWIDTH CSHEIGHT TAB NORTHWEST NORTHEAST SOUTHWEST SOUTHEAST NORTH EAST SOUTH WEST WIDTH HEIGHT)
            (SETQ CSWIDTH (BITMAPWIDTH (COLORSCREENBITMAP)))
            (SETQ CSHEIGHT (BITMAPHEIGHT (COLORSCREENBITMAP)))
            (SETQ TAB 20)
            (SETQ WIDTH (IQUOTIENT (IDIFFERENCE CSWIDTH (ITIMES 3 TAB))
                            2))
            (SETQ HEIGHT (IQUOTIENT (IDIFFERENCE CSHEIGHT (ITIMES 3 TAB))
                            2))
            (SETQ NORTHWEST (create POSITION
                               XCOORD _ TAB
                               YCOORD _ (IPLUS TAB HEIGHT TAB)))
            (SETQ NORTHEAST (create POSITION
                               XCOORD _ (IPLUS TAB WIDTH TAB)
                               YCOORD _ (IPLUS TAB HEIGHT TAB)))
            (SETQ SOUTHWEST (create POSITION
                               XCOORD _ TAB
                               YCOORD _ TAB))
            (SETQ SOUTHEAST (create POSITION
                               XCOORD _ (IPLUS TAB WIDTH TAB)
                               YCOORD _ TAB))
            [SETQ NORTH (create POSITION
                           XCOORD _ (IQUOTIENT (IDIFFERENCE CSWIDTH WIDTH)
                                          2)
                           YCOORD _ (IDIFFERENCE CSHEIGHT (IPLUS TAB HEIGHT]
            (SETQ EAST (create POSITION
                          XCOORD _ (IDIFFERENCE CSWIDTH (IPLUS WIDTH TAB))
                          YCOORD _ (IQUOTIENT (IDIFFERENCE CSHEIGHT HEIGHT)
                                         2)))
            (SETQ SOUTH (create POSITION
                           XCOORD _ (IQUOTIENT (IDIFFERENCE CSWIDTH WIDTH)
                                          2)
                           YCOORD _ TAB))
            (SETQ WEST (create POSITION
                          XCOORD _ TAB
                          YCOORD _ (IQUOTIENT (IDIFFERENCE CSHEIGHT HEIGHT)
                                         2)))
            (SETQ CD.WINDOW1 (CREATEW (create SCREENREGION
                                         SCREEN _ (COLORSCREEN)
                                         LEFT _ (fetch (POSITION XCOORD) of NORTHWEST)
                                         BOTTOM _ (fetch (POSITION YCOORD) of NORTHWEST)
                                         WIDTH _ WIDTH
                                         HEIGHT _ HEIGHT)
                                  'WINDOW1))
            (SETQ CD.WINDOW2 (CREATEW (create SCREENREGION
                                         SCREEN _ (COLORSCREEN)
                                         LEFT _ (fetch (POSITION XCOORD) of NORTHEAST)
                                         BOTTOM _ (fetch (POSITION YCOORD) of NORTHEAST)
                                         WIDTH _ WIDTH
                                         HEIGHT _ HEIGHT)
                                  'WINDOW2))
            (SETQ CD.WINDOW3 (CREATEW (create SCREENREGION
                                         SCREEN _ (COLORSCREEN)
                                         LEFT _ (fetch (POSITION XCOORD) of SOUTHWEST)
                                         BOTTOM _ (fetch (POSITION YCOORD) of SOUTHWEST)
                                         WIDTH _ WIDTH
                                         HEIGHT _ HEIGHT)
                                  'WINDOW3))
            (SETQ CD.WINDOW4 (CREATEW (create SCREENREGION
                                         SCREEN _ (COLORSCREEN)
                                         LEFT _ (fetch (POSITION XCOORD) of SOUTHEAST)
                                         BOTTOM _ (fetch (POSITION YCOORD) of SOUTHEAST)
                                         WIDTH _ WIDTH
                                         HEIGHT _ HEIGHT)
                                  'WINDOW4])
```

₍CD.INIT.MENU
```
  [LAMBDA NIL                                            (* kbr%: "11-Aug-85 15:05")
    (SETQ CD.MENU (create MENU
                          TITLE _ "Color Demos"
                          ITEMS _ (APPEND CD.DEMOS '(STOP))
                          WHENSELECTEDFN _ 'CD.CHOOSEDEMO])
```

₍CD.NEXTELEMENT
```
  [LAMBDA (ELEMENT LIST)                                 (* kbr%: "10-Jul-85 18:12")
                                                         (* Pick element after ELEMENT in rotating LIST.
                                                         *)

    (PROG (TAIL ANSWER)
          (SETQ TAIL (FMEMB ELEMENT LIST))
          [SETQ ANSWER (COND
                          ((CDR TAIL)
                           (CADR TAIL))
                          (T (CAR LIST]
          (RETURN ANSWER])
```

₍CD.RANDELEMENT
```
  [LAMBDA (LIST)                                         (* kbr%: "31-Jan-86 16:24")
    (CAR (NTH LIST (RAND 1 (LENGTH LIST)))]
```

₍CD.CHOOSEDEMO
```
  [LAMBDA (NEW)
    (DECLARE (GLOBALVARS CD.NEWDEMO))                    (* bas%: " 5-JUN-82 13:07")
    (SETQ CD.NEWDEMO NEW])
```

₍CD.QUITP
```
  [LAMBDA (N)                                            (* kbr%: " 3-Sep-86 20:05")
    (DECLARE (GLOBALVARS CD.NEWDEMO CD.STOPDATE))
    (BLOCK)
    (OR CD.TIMECELL (SETQ CD.TIMECELL (CREATECELL \FIXP)))
    (OR CD.NEWDEMO (COND
                      ((FIXP N)
                       (SETQ CD.STOPDATE (IPLUS (ITIMES N 1000)
                                                (CLOCK 0 CD.TIMECELL))))
                       NIL)
                      (T (AND CD.STOPDATE (ILESSP CD.STOPDATE (CLOCK 0 CD.TIMECELL])
)
```

```
            (* * Tunnel demo. *)

(DEFINEQ
```

₍CD.MINESHAFT
```
  [LAMBDA (WINDOW N OUTFLG)                              (* kbr%: "20-Jun-91 11:02")
                                                         (* Draws a mineshaft on WINDOW.)

    (PROG (COLOR WIDTH HEIGHT MAXCOLOR)
          (WINDOWPROP WINDOW 'TITLE 'CD.MINESHAFT)
          (COND
             ((NULL N)
              (SETQ N 1)))
          (SETQ COLOR 0)
          (SETQ WIDTH (WINDOWPROP WINDOW 'WIDTH))
          (SETQ HEIGHT (WINDOWPROP WINDOW 'HEIGHT))
          (SETQ MAXCOLOR (MAXIMUMCOLOR (BITSPERPIXEL WINDOW)))
          (for LEFT from 0 by (ITIMES N 4) as BOTTOM from 0 by (ITIMES N 3) to (IQUOTIENT HEIGHT 2)
             do (BLTSHADE COLOR WINDOW LEFT BOTTOM (IDIFFERENCE WIDTH (ITIMES LEFT 2))
                      (IDIFFERENCE HEIGHT (ITIMES BOTTOM 2)))
                (COND
                   [OUTFLG (SETQ COLOR (SUB1 COLOR))
                           (COND
                              ((ILESSP COLOR 0)
                               (SETQ COLOR MAXCOLOR]
                   (T (SETQ COLOR (ADD1 COLOR))
                      (COND
                         ((IGREATERP COLOR MAXCOLOR)
                          (SETQ COLOR 0])
```

₍CD.POINTTEST
```
  [LAMBDA (WINDOW)                                       (* kbr%: " 8-Jul-85 09:44")
                                                         (* randomly puts points in a region)

    (PROG (MAXX MAXY MAXCOLOR)
          [SETQ MAXX (SUB1 (WINDOWPROP WINDOW 'WIDTH]
          [SETQ MAXY (SUB1 (WINDOWPROP WINDOW 'HEIGHT]
          (SETQ MAXCOLOR (MAXIMUMCOLOR (BITSPERPIXEL WINDOW)))
          (for I from 1 to 100 do (BITMAPBIT WINDOW (RAND 0 MAXX)
                                             (RAND 0 MAXY)
```

```
                                          (RAND 0 MAXCOLOR])
)

(DEFINEQ
```

(**WELLDEMO**
```
  [LAMBDA (WAIT)                                          (* kbr%: " 3-Sep-86 20:08")
    (PROG (STARTCOLOR THRUCOLOR)
          (SETQ STARTCOLOR 1)
          (SETQ THRUCOLOR 14)
          (CD.SQUARETUNNEL CD.WINDOW1 4 STARTCOLOR THRUCOLOR)
          (CD.SQUARETUNNEL CD.WINDOW2 4 THRUCOLOR STARTCOLOR)
          (CD.CIRCULARTUNNEL CD.WINDOW3 4 THRUCOLOR STARTCOLOR)
          (CD.CIRCULARTUNNEL CD.WINDOW4 4 STARTCOLOR THRUCOLOR)
          (CD.QUITP (OR WAIT 120))
          (until (CD.QUITP) do (ROTATECOLORMAP STARTCOLOR THRUCOLOR])
```

(**TUNNELDEMO**
```
  [LAMBDA (WAIT)                                          (* kbr%: " 3-Sep-86 20:08")
    (PROG (STARTCOLOR THRUCOLOR)
          (SETQ STARTCOLOR 1)
          (SETQ THRUCOLOR 14)
          (CD.SQUARETUNNEL CD.WINDOW1 STARTCOLOR THRUCOLOR)
          (CD.SQUARETUNNEL CD.WINDOW2 THRUCOLOR STARTCOLOR)
          (CD.CIRCULARTUNNEL CD.WINDOW3 THRUCOLOR STARTCOLOR)
          (CD.CIRCULARTUNNEL CD.WINDOW4 STARTCOLOR THRUCOLOR)
          (CD.QUITP (OR WAIT 120))
          (until (CD.QUITP) do (ROTATECOLORMAP STARTCOLOR THRUCOLOR])
```

(**CD.SQUARETUNNEL**
```
  [LAMBDA (WINDOW STARTCOLOR THRUCOLOR)                   (* kbr%: "24-Feb-86 12:16")
                                                          (* Draws a CD.SQUARETUNNEL on the WINDOW.)
    (PROG (LEFT BOTTOM MAXBOTTOM FACTOR LEFTFACTOR BOTTOMFACTOR INCR DELTA COLOR)
          (SETQ LEFT 0.0)
          (SETQ BOTTOM 0.0)
          (SETQ MAXBOTTOM (FQUOTIENT (BITMAPHEIGHT WINDOW)
                              2.0))
          (SETQ FACTOR 0.2)
          (SETQ LEFTFACTOR (FTIMES 4.0 FACTOR))
          (SETQ BOTTOMFACTOR (FTIMES 3.0 FACTOR))
          (COND
             ((IGEQ THRUCOLOR STARTCOLOR)
              (SETQ DELTA 1))
             (T (SETQ DELTA -1)))
          (SETQ COLOR STARTCOLOR)
          (do (BLTSHADE COLOR WINDOW (FIX LEFT)
                     (FIX BOTTOM)
                     (IDIFFERENCE (BITMAPWIDTH WINDOW)
                            (FTIMES LEFT 2))
                     (IDIFFERENCE (BITMAPHEIGHT WINDOW)
                            (FTIMES BOTTOM 2)))
              [SETQ INCR (FPLUS 1.0 (FTIMES 0.1 (FDIFFERENCE MAXBOTTOM BOTTOM]
              (SETQ LEFT (FPLUS LEFT (FTIMES INCR LEFTFACTOR)))
              (SETQ BOTTOM (FPLUS BOTTOM (FTIMES INCR BOTTOMFACTOR)))
              (COND
                 ((FGREATERP BOTTOM MAXBOTTOM)
                  (RETURN)))
              (COND
                 ((EQ COLOR THRUCOLOR)
                  (SETQ COLOR STARTCOLOR))
                 (T (SETQ COLOR (IPLUS COLOR DELTA])
```

(**CD.CIRCULARTUNNEL**
```
  [LAMBDA (WINDOW STARTCOLOR THRUCOLOR)                   (* kbr%: "24-Feb-86 12:23")
    (PROG (N WIDTH HEIGHT SIZE DELTA COLOR)
          (SETQ N 4)
          (SETQ WIDTH (BITMAPWIDTH WINDOW))
          (SETQ HEIGHT (BITMAPHEIGHT WINDOW))
          (SETQ SIZE (IQUOTIENT (SQRT (IPLUS (ITIMES WIDTH WIDTH)
                                          (ITIMES HEIGHT HEIGHT)))
                         2))
          (COND
             ((IGEQ THRUCOLOR STARTCOLOR)
              (SETQ DELTA 1))
             (T (SETQ DELTA -1)))
          (SETQ COLOR STARTCOLOR)
          (for I from 1 to SIZE by N do

           (* Have to make the brush a little bit thicker than the amount by which we are incrementing the radius to avoid cracks
           appearing between circles. *)

                         (DRAWCIRCLE (IQUOTIENT WIDTH 2)
                                (IQUOTIENT HEIGHT 2)
```

```
                                               I
                                               (LIST 'ROUND (IPLUS N 2)
                                                          COLOR)
                                               NIL WINDOW)
                                (COND
                                   ((EQ COLOR THRUCOLOR)
                                    (SETQ COLOR STARTCOLOR))
                                   (T (SETQ COLOR (IPLUS COLOR DELTA])
)
```

            (* * Junk fns. *)

```
(DEFINEQ
```

(**CD.ROTATEIT**
```
  [LAMBDA (BEGINCOLOR ENDCOLOR WAIT)                    (* kbr%: "23-Feb-86 17:30")
    (PROG NIL
          (do (ROTATECOLORMAP BEGINCOLOR ENDCOLOR)
              (COND
                 ((NULL WAIT))
                 ((SMALLP WAIT)
                  (DISMISS WAIT))
                 (T (GETMOUSESTATE)
                    (DISMISS (LRSH LASTMOUSEX 3])
)
```

```
(DEFINEQ
```

(**COLORMAPOF**
```
  [LAMBDA (NEWCM BITSPERPIXEL)                          (* kbr%: " 3-Sep-86 16:24")
    (COND
       [(COLORMAPP NEWCM)
        (COND
           ((EQ BITSPERPIXEL (COLORMAPBITS NEWCM))
            NEWCM)
           (T (COLORMAPCOPY NEWCM BITSPERPIXEL]
       ((EQ NEWCM T)
        (COLORMAPCREATE NIL BITSPERPIXEL))
       (T (COLORMAPCREATE NEWCM BITSPERPIXEL])
```

(**COLORMAPCOPY**
```
  [LAMBDA (COLORMAP BITSPERPIXEL)                       (* rrb "21-OCT-82 18:32")
```

            (* makes a copy of a color map If COLORMAP is not a color map, it returns a new color map with default values.
            If the colormaps are different sizes, the first 16 entries will be the same and the rest will be black)

```
    (COLORMAPCREATE (AND (COLORMAPP COLORMAP BITSPERPIXEL)
                         (INTENSITIESFROMCOLORMAP COLORMAP))
            BITSPERPIXEL])
```

(**COLORFILL**
```
  [LAMBDA (REGION COLOR# COLORBM OPERATION)             (* rrb "21-DEC-82 20:54")
```

            (* fills a region in a color bitmap with a color. Calls the standard BITBLT with a texture.)

```
    (PROG (COLORBM)
          [SETQ COLORBM (COND
                           ((TYPENAMEP COLORBM 'BITMAP)
                            COLORBM)
                           ((NULL COLORBM)
                            (COLORSCREENBITMAP))
                           (T (\ILLEGAL.ARG COLORBM]
          (COND
             ((NULL REGION)
              (COLORFILLAREA 0 0 NIL NIL COLOR# COLORBM OPERATION))
             (T (COLORFILLAREA (fetch (REGION LEFT) of REGION)
                      (fetch (REGION BOTTOM) of REGION)
                      (fetch (REGION WIDTH) of REGION)
                      (fetch (REGION HEIGHT) of REGION)
                      COLOR# COLORBM OPERATION]))
```

(**COLORBACKGROUND**
```
  [LAMBDA (TEXTURE)                                     (* kbr%: " 3-Sep-86 16:30")
    (CHANGEBACKGROUND TEXTURE (COLORSCREEN])
```

(**COLORFILLAREA**
```
  [LAMBDA (LEFT BOTTOM WIDTH HEIGHT COLOR# COLORBM OPERATION)   (* kbr%: " 8-Jul-85 08:53")
                                                       (* fills an area of a color bitmap with color.)
    [COND
       ((NULL COLORBM)
```

```
        (SETQ COLORBM (COLORSCREENBITMAP]
      (BITBLT NIL NIL NIL COLORBM LEFT BOTTOM WIDTH HEIGHT 'TEXTURE OPERATION COLOR#])

)


          (* * Walk demos)

(DEFINEQ

(WALKDEMO
  [LAMBDA (WINDOW WAIT SPEED WORD1 WORDS)                     (* kbr%: " 3-Sep-86 18:50")
    (DECLARE (GLOBALVARS CD.STOPDATE))
    (PROG NIL
          (CLEARW WINDOW)
          (for I in [COND
                       (CD.OVERPAINTBITMAPS)
                       (T (SETQ CD.OVERPAINTBITMAPS (LIST (BITMAPFROMSTRING "Interlisp-D"]
             until (CD.QUITP (OR WAIT 10)) do (CD.WALKBM WINDOW I NIL SPEED)
                                              (OR (CD.QUITP 10)
                                                  (CD.WALKBM WINDOW NIL NIL SPEED])


(CD.WALKBM
  [LAMBDA (WINDOW BM FONT SPEED)                              (* kbr%: " 3-Sep-86 18:52")
    (PROG (BITSPERPIXEL EBM SCR MAXX MAXY MAXCOLOR)
          (SETQ BITSPERPIXEL (BITSPERPIXEL WINDOW))
          (OR SPEED (SETQ SPEED 5))
          (SETQ MAXCOLOR (MAXIMUMCOLOR BITSPERPIXEL))
          (SETQ EBM (CACHEBITMAP BM FONT BITSPERPIXEL))
          (SETQ SCR (BITMAPCOPY EBM))
          (SETQ MAXX (IDIFFERENCE (WINDOWPROP WINDOW 'WIDTH)
                           (BITMAPWIDTH EBM)))
          (SETQ MAXY (IDIFFERENCE (WINDOWPROP WINDOW 'HEIGHT)
                           (BITMAPHEIGHT EBM)))
          (SCREENCOLORMAP (CD.RANDCOLORMAP))
          (bind (X _ -1)
                (Y _ -1)
                (DX _ 0)
                (DY _ 0)
                (I _ 1)
                (J _ 0)
                (COLORCOUNTER _ 0) until (CD.QUITP) do [COND
                                                          ((EQ I MAXCOLOR)
                                                           (SETQ I 1))
                                                          (T (SETQ I (ADD1 I]
                                                     (add X DX)
                                                     (add Y DY)
                                                     [COND
                                                        ((OR (ILEQ J 0)
                                                             (ILESSP X 0)
                                                             (IGEQ X MAXX)
                                                             (ILESSP Y 0)
                                                             (IGEQ Y MAXY))
                                                         (SETQ X (RAND 0 MAXX))
                                                         (SETQ Y (RAND 0 MAXY))
                                                         (SETQ DX (RAND (IMINUS SPEED)
                                                                        SPEED))
                                                         (SETQ DY (RAND (IMINUS SPEED)
                                                                        SPEED))
                                                         (SETQ J (RAND CD.MINWALK CD.MAXWALK)))
                                                        (T (SETQ J (SUB1 J]
                                                     (OVERPAINT EBM (COLORSCREENBITMAP)
                                                         X Y (COLORTEXTUREFROMCOLOR# I)
                                                         SCR)
                                                     (COND
                                                        ((IGREATERP (SETQ COLORCOUNTER (ADD1 COLORCOUNTER))
                                                                300)
                                                         (SETQ COLORCOUNTER 0)
                                                         (SCREENCOLORMAP (CD.RANDCOLORMAP)))
                                                        (T (ROTATECOLORMAP 1 MAXCOLOR)))
                                                     (DISMISS 15])


(CD.RANDCOLORMAP
  [LAMBDA NIL                                                 (* kbr%: " 3-Sep-86 21:16")
    (PROG (MAXCOLOR)
          (SETQ MAXCOLOR (BITSPERPIXEL (SCREENCOLORMAP)))
          (SELECTQ (RAND 1 2)
               (1 [COND
                     ((NULL CD.RANDOM.COLORMAP)
                      (SETQ CD.RANDOM.COLORMAP (COLORMAPCREATE))
                      (for COLOR from 0 to MAXCOLOR do (SETA (ELT CD.RANDOM.COLORMAP COLOR)
                                                         (create RGB
                                                              RED _ (RAND 0 255)
                                                              GREEN _ (RAND 0 255)
                                                              BLUE _ (RAND 0 255]
```

```
                        (RETURN CD.RANDOM.COLORMAP))
                (2 (COND
                     ((NULL CD.RAINBOW.COLORMAP)
                      [SETQ CD.RAINBOW.COLORMAP (RAINBOWMAP (COLORMAPBITS (SCREENCOLORMAP]
                                                             (* make every 16th color random)
                      [for COLOR from (RAND 0 15) to MAXCOLOR by 16 do (SETA (ELT CD.RAINBOW.COLORMAP COLOR)
                                                                            (create RGB
                                                                                    RED _ (RAND 0 255)
                                                                                    GREEN _ (RAND 0 255)
                                                                                    BLUE _ (RAND 0 255]
                   (RETURN CD.RAINBOW.COLORMAP)))
                 CD.RAINBOW.COLORMAP)
               NIL])
)

(RPAQ? CD.MAXWALK NIL)

(RPAQ? CD.MINWALK NIL)

(RPAQ? CD.RANDCOLORPROB NIL)

(RPAQ? CD.RANDOM.COLORMAP NIL)

(RPAQ? CD.RAINBOW.COLORMAP NIL)

(RPAQ? CD.8BITBMEXP (LIST (HARRAY 60)))

(RPAQ? CD.4BITBMEXP (LIST (HARRAY 60)))

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS CD.8BITBMEXP CD.4BITBMEXP CD.RANDOM.COLORMAP CD.RAINBOW.COLORMAP)
)


            (* * Kinetic demos *)

(DEFINEQ
```

(**KINETICDEMO**
```
  [LAMBDA (WAIT WINDOW)                                            (* kbr%: " 3-Sep-86 20:12")
                                                                   (* test example (KINETICDEMO))

    (PROG (MAXCOLOR MAXX MAXY X Y)
          (WINDOWPROP WINDOW 'TITLE "KINETIC")
          (CLEARW WINDOW)
          (SETQ MAXCOLOR (MAXIMUMCOLOR (BITSPERPIXEL WINDOW)))
          (SETQ MAXX (SUB1 (BITMAPWIDTH WINDOW)))
          (SETQ MAXY (SUB1 (BITMAPHEIGHT WINDOW)))
          (CD.QUITP (OR WAIT 120))
          (until (CD.QUITP) do (SETQ X (RAND 0 MAXX))
                               (SETQ Y (RAND 0 MAXY))
                               (BLTSHADE (RAND 0 MAXCOLOR)
                                      WINDOW X Y (RAND 2 (IDIFFERENCE MAXX X))
                                      (RAND 2 (IDIFFERENCE MAXY Y))
                                      (SELECTQ (RAND 0 5)
                                          (0 'PAINT)
                                          (1 'ERASE)
                                          (2 'INVERT)
                                          'REPLACE])
```

(**CD.DEMOKINETIC**
```
  [LAMBDA (WINDOW FIRSTCOLOR LASTCOLOR)                            (* kbr%: " 3-Sep-86 18:40")
                                                                   (* test example (CD.DEMOKINETIC))
    (PROG (BITSPERPIXEL LEFT RIGHT BOTTOM TOP X Y COLOR# ROTATETIME KINROTATETIME HALFWIDTH HALFHEIGHT)
          (SETQ BITSPERPIXEL (BITSPERPIXEL WINDOW))
          (OR (COLORNUMBERP FIRSTCOLOR)
              (SETQ FIRSTCOLOR 0))
          (OR (COLORNUMBERP LASTCOLOR)
              (SETQ LASTCOLOR (MAXIMUMCOLOR BITSPERPIXEL)))
          (COND
             ((IGREATERP FIRSTCOLOR LASTCOLOR)
              (swap FIRSTCOLOR LASTCOLOR)))
          (SETQ LEFT 0)
          (SETQ RIGHT (WINDOWPROP WINDOW 'WIDTH))
          (SETQ BOTTOM 0)
          (SETQ TOP (WINDOWPROP WINDOW 'HEIGHT))
          (SETQ COLOR# FIRSTCOLOR)
          (SETQ ROTATETIME (CLOCK 0))
          (SETQ KINROTATETIME (CLOCK 0))
          (SETQ HALFWIDTH (IQUOTIENT RIGHT 2))
          (SETQ HALFHEIGHT (IQUOTIENT TOP 2))
          (BLTSHADE FIRSTCOLOR WINDOW)
     BLTLP
          [COND
             ((IGREATERP (CLOCKDIFFERENCE ROTATETIME)
```

```
                         CD.LOGOWAITTIME)                                    (* cycle the colors in the logo)
                (ROTATECOLORMAP 1 (MAXIMUMCOLOR BITSPERPIXEL))
                (SETQ ROTATETIME (CLOCK0 ROTATETIME]
          [COND
             ((IGREATERP (CLOCKDIFFERENCE KINROTATETIME)
                         CD.KINWAITTIME)                                     (* cycle the colors in the logo)
                (ROTATECOLORMAP FIRSTCOLOR LASTCOLOR)
                (SETQ KINROTATETIME (CLOCK0 KINROTATETIME]
          (SETQ X (RAND LEFT RIGHT))
          (SETQ Y (RAND BOTTOM TOP))
          (BLTSHADE [COND
                       ((EQ COLOR# LASTCOLOR)
                        (SETQ COLOR# FIRSTCOLOR))
                       (T (SETQ COLOR# (ADD1 COLOR#]
                    WINDOW X Y (RAND 2 (IMIN (IDIFFERENCE RIGHT X)
                                             HALFWIDTH))
                    (RAND 2 (IMIN (IDIFFERENCE TOP Y)
                             HALFHEIGHT))
                    'REPLACE)
      MOUSELP
          (COND
             ((MOUSESTATE MIDDLE)
                (SELECTQ [CAR (ERSETQ (MENU (PROGN (COND
                                                      ((NOT (TYPENAMEP CD.KINETICMENU 'MENU))
                                                       (INIT/COLORDEMO/MENUS)))
                                                   CD.KINETICMENU]
                    (EditColorMap (EDITCOLORMAP))
                    (IncreaseLogoSpeed
                        (SETQ CD.LOGOWAITTIME (FIX (FTIMES CD.LOGOWAITTIME 0.8))))
                    (DecreaseLogoSpeed
                        (SETQ CD.LOGOWAITTIME (FIX (FTIMES CD.LOGOWAITTIME 1.3))))
                    (IncreaseColorFlip
                        (SETQ CD.KINWAITTIME (FIX (FTIMES CD.KINWAITTIME 0.8))))
                    (DecreaseColorFlip
                        (SETQ CD.KINWAITTIME (FIX (FTIMES CD.KINWAITTIME 1.3))))
                    (STOP (RETURN))
                    NIL))
             ((MOUSESTATE LEFT)                                             (* on left rotate colormap)
                (ROTATECOLORMAP FIRSTCOLOR LASTCOLOR)
                [COND
                   ((IGREATERP (CLOCKDIFFERENCE ROTATETIME)
                               CD.LOGOWAITTIME)                             (* cycle the colors in the logo)
                      (ROTATECOLORMAP 1 (MAXIMUMCOLOR BITSPERPIXEL))
                      (SETQ ROTATETIME (CLOCK0 ROTATETIME]
                [COND
                   ((IGREATERP (CLOCKDIFFERENCE KINROTATETIME)
                               CD.KINWAITTIME)                             (* cycle the colors in the logo)
                      (ROTATECOLORMAP FIRSTCOLOR LASTCOLOR)
                      (SETQ KINROTATETIME (CLOCK0 KINROTATETIME]
                (DISMISS (IMIN CD.KINETICWAITTIME CD.LOGOWAITTIME))
                (GO MOUSELP)))
          (GO BLTLP])
```

(**CD.CIRKIN**

```
  [LAMBDA (WINDOW)                                                          (* kbr%: " 8-Jul-85 15:18")
    (PROG (MAXX MAXY MAXRAD MAXCOLOR)
          (WINDOWPROP WINDOW 'TITLE 'CD.CIRKIN)
          (SETQ MAXCOLOR (MAXIMUMCOLOR (BITSPERPIXEL WINDOW)))
          [SETQ MAXX (SUB1 (WINDOWPROP WINDOW 'WIDTH]
          [SETQ MAXY (SUB1 (WINDOWPROP WINDOW 'HEIGHT]
          (SETQ MAXRAD (IQUOTIENT (IMIN MAXX MAXY)
                                  3))
      LP  (for I from 1 to 4 do (FILLCIRCLE (RAND 0 MAXX)
                                            (RAND 0 MAXY)
                                            (RAND 0 MAXRAD)
                                            (RAND 0 MAXCOLOR)
                                            WINDOW))
          (DSPOPERATION (SELECTQ (RAND 0 3)
                                 (0 'REPLACE)
                                 (1 'PAINT)
                                 (2 'INVERT)
                                 'ERASE)
                        WINDOW)
          (GO LP])

)

(RPAQQ CD.KINETICWAITTIME 150)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS CD.KINETICWAITTIME)
)


          (* * Vine demo *)
```

```
(DEFINEQ

(VINEDEMO
  [LAMBDA (WAIT WINDOW)                                                 (* kbr%: " 3-Sep-86 20:12")
    (PROG (MAXX MAXY X1 Y1 DX DY X2 Y2 COLOR MAXCOLOR WIDTH MAXWIDTH)
          (WINDOWPROP WINDOW 'TITLE "VINE")
          (CLEARW WINDOW)
          (SETQ MAXX (SUB1 (BITMAPWIDTH WINDOW)))
          (SETQ MAXY (SUB1 (BITMAPHEIGHT WINDOW)))
          (SETQ X1 (IQUOTIENT MAXX 2))
          (SETQ Y1 (IQUOTIENT MAXY 2))
          (SETQ MAXCOLOR (MAXIMUMCOLOR (BITSPERPIXEL WINDOW)))
          (SETQ COLOR (IQUOTIENT MAXCOLOR 2))
          (SETQ MAXWIDTH (IQUOTIENT (IMIN MAXX MAXY)
                                    4))
          (SETQ WIDTH 10)
          (SETQ DX 0)
          (SETQ DY 0)
          (CD.QUITP (OR WAIT 120))
          (until (CD.QUITP NIL)
             do                                                         (* Update velocity. *)
                [SETQ DX (CD.INRANGE (IQUOTIENT (IMINUS X1)
                                                2)
                                     (IQUOTIENT (IDIFFERENCE MAXX X1)
                                                2)
                                     (IPLUS DX (RAND (IQUOTIENT (IMINUS X1)
                                                                24)
                                                     (IQUOTIENT (IDIFFERENCE MAXX X1)
                                                                24]
                [SETQ DY (CD.INRANGE (IQUOTIENT (IMINUS Y1)
                                                2)
                                     (IQUOTIENT (IDIFFERENCE MAXY Y1)
                                                2)
                                     (IPLUS DY (RAND (IQUOTIENT (IMINUS Y1)
                                                                24)
                                                     (IQUOTIENT (IDIFFERENCE MAXY Y1)
                                                                24]

         (* Knowing current (X1 Y1) and last WIDTH and COLOR, compute the point we draw to
         (X2 Y2) and new WIDTH and COLOR. *)

                (SETQ X2 (CD.INRANGE 0 MAXX (IPLUS X1 DX)))
                [COND
                   ((OR (EQ X2 0)
                        (EQ X2 MAXX))
                    (SETQ DX (IMINUS DX]
                (SETQ Y2 (CD.INRANGE 0 MAXY (IPLUS Y1 DY)))
                [COND
                   ((OR (EQ Y2 0)
                        (EQ Y2 MAXY))
                    (SETQ DY (IMINUS DY]
                [SETQ WIDTH (CD.INRANGE 1 MAXWIDTH
                                        (IPLUS WIDTH
                                               (ITIMES (CAR (NTH '(-1 0 0 0 0 0 0 1)
                                                                 (RAND 1 8)))
                                                       (ADD1 (IQUOTIENT WIDTH 3]
                (SETQ COLOR (IMOD [IPLUS COLOR (CAR (NTH '(-1 0 0 0 0 0 0 1)
                                                         (RAND 1 8]
                                  MAXCOLOR))                            (* Drawline and update position (X1 Y1) *)
                (DRAWLINE X1 Y1 X2 Y2 WIDTH 'REPLACE WINDOW COLOR)
                (SETQ X1 X2)
                (SETQ Y1 Y2])

(CD.INRANGE
  [LAMBDA (MIN MAX VALUE)                                               (* kbr%: " 4-Mar-85 14:12")
    (IMAX MIN (IMIN MAX VALUE])

)


         (* * Raining demo *)

(DEFINEQ

(RAINING
  [LAMBDA (WAIT WINDOW)                                                 (* kbr%: " 3-Sep-86 20:12")
    (PROG (N MAXCOLOR WIDTH HEIGHT COLOR#)
          (WINDOWPROP WINDOW 'TITLE "RAINING")
          (CLEARW WINDOW)
          (SETQ N 3)
          (SETQ MAXCOLOR (MAXIMUMCOLOR (BITSPERPIXEL WINDOW)))
          (SETQ WIDTH (BITMAPWIDTH WINDOW))
          (SETQ HEIGHT (BITMAPHEIGHT WINDOW))
          (SETQ COLOR# (RAND 0 MAXCOLOR))
          (CD.QUITP (OR WAIT 120))
```

```
              (until (CD.QUITP NIL) do (SETQ COLOR# (CD.DOCOLORDROP (RAND 10 (IDIFFERENCE WIDTH 10))
                                                                    (RAND 10 (IDIFFERENCE HEIGHT 10))
                                                                    N
                                                                    (ITIMES N 3)
                                                                    8 COLOR# MAXCOLOR WINDOW])
```

(**CD.PUTDROPS**
```
  [LAMBDA (WINDOW N)                                        (* kbr%: " 8-Jul-85 10:53")
    (PROG (POS MAXCOLOR)
          (SETQ MAXCOLOR (MAXIMUMCOLOR (BITSPERPIXEL WINDOW)))
      LP  (SETQ POS (GETPOSITION WINDOW))
          (COND
             ((LASTMOUSESTATE RIGHT)
              (RETURN)))
          (CD.DOCOLORDROP (fetch (POSITION XCOORD) of POS)
                  (fetch (POSITION YCOORD) of POS)
                  (OR N 3)
                  (COND
                     ((LASTMOUSESTATE LEFT)
                      (RAND 8 15))
                     (T (RAND 10 20)))
                  6 0 MAXCOLOR WINDOW)
          (GO LP])
```

(**CD.DOCOLORDROP**
```
  [LAMBDA (X Y WIDTH RADIUSINCR NCIRCLES COLOR# MAXCOLOR WINDOW) (* kbr%: " 8-Jul-85 10:32")
                                                             (* draws a series of concentric circles.)
     (for I from 1 to NCIRCLES do (DRAWCIRCLE X Y (ITIMES I RADIUSINCR)
                                     [LIST 'ROUND WIDTH (COND
                                                          ((ILESSP (SETQ COLOR# (ADD1 COLOR#))
                                                                  MAXCOLOR)
                                                           COLOR#)
                                                          (T (SETQ COLOR# 0]
                                     NIL WINDOW))
     COLOR#])
```

(**CD.RAININGCOLORMAP**
```
  [LAMBDA (BITSPERPIXEL)                                    (* kbr%: " 8-Jul-85 11:13")
    (COLORMAPCREATE (SELECTQ BITSPERPIXEL
                        (4 [NCONC (LIST '(0 0 0))
                                  (for I from 100 to 255 by 50 collect (LIST 0 0 I))
                                  (for I from 0 to 11 collect '(0 0 0])
                        (8 [NCONC (LIST '(0 0 0))
                                  (for I from 100 to 255 by 50 collect (LIST 0 0 I))
                                  (for I from 0 to 11 collect '(0 0 0])
                        (\ILLEGAL.ARG BITSPERPIXEL))
            BITSPERPIXEL])
```

)

              (* * Modart demo *)

(DEFINEQ

(**MODARTDEMO**
```
  [LAMBDA (WAIT WINDOW)                                     (* kbr%: " 3-Sep-86 20:12")
    (PROG (WIDTH HEIGHT MAXCOLOR W H L B)
          (WINDOWPROP WINDOW 'TITLE "MODART")
          (CLEARW WINDOW)
          (SETQ WIDTH (BITMAPWIDTH WINDOW))
          (SETQ HEIGHT (BITMAPHEIGHT WINDOW))
          (SETQ MAXCOLOR (MAXIMUMCOLOR (BITSPERPIXEL WINDOW)))
          (CD.QUITP (OR WAIT 120))
          (until (CD.QUITP) do (SETQ W (RAND 0 WIDTH))
                               (SETQ H (RAND 0 HEIGHT))
                               (SETQ L (RAND 0 (IDIFFERENCE WIDTH W)))
                               (SETQ B (RAND 0 (IDIFFERENCE HEIGHT H)))
                               (BITBLT WINDOW 0 0 WINDOW L B W H (SELECTQ (RAND 0 2)
                                                                    (0 'INPUT)
                                                                    (1 'INVERT)
                                                                    'TEXTURE)
                                         (SELECTQ (RAND 0 3)
                                              (0 'REPLACE)
                                              (1 'PAINT)
                                              (2 'INVERT)
                                              'ERASE)
                                         (RAND 0 MAXCOLOR])
```

)

              (* * Starburst demo *)
```

```
(DEFINEQ

(STARBURSTDEMO
  [LAMBDA (WAIT WINDOW)                                         (* kbr%: " 3-Sep-86 20:11")
    (PROG (MAXX MAXY MAXCOLOR MAXWIDTH MINWIDTH)
          (WINDOWPROP WINDOW 'TITLE "STARBURST")
          (CLEARW WINDOW)
          (SETQ MAXX (SUB1 (BITMAPWIDTH WINDOW)))
          (SETQ MAXY (SUB1 (BITMAPHEIGHT WINDOW)))
          (SETQ MAXCOLOR (MAXIMUMCOLOR (BITSPERPIXEL WINDOW)))
          (SETQ MAXWIDTH (IQUOTIENT (IMIN MAXX MAXY)
                                    2))
          (SETQ MINWIDTH (IQUOTIENT MAXWIDTH 6))
          (CD.QUITP (OR WAIT 120))
          (until (CD.QUITP) do (CD.STARBURST MAXX MAXY MINWIDTH MAXWIDTH WINDOW])


(CD.STARBURST
  [LAMBDA (MAXX MAXY MINWIDTH MAXWIDTH WINDOW)                  (* kbr%: "23-Feb-86 17:15")
    (PROG (BITSPERPIXEL NCOLORS RADIUS C S CX1 CY1 COLOR1 DELTA1 CX2 CY2 COLOR2 DELTA2 CX3 CY3 COLOR3 DELTA3)

          (* Do several starbursts at once to help minimize calls to COS and SIN which are slow.
          *)

          (SETQ BITSPERPIXEL (BITSPERPIXEL WINDOW))
          (SETQ NCOLORS (ADD1 (MAXIMUMCOLOR BITSPERPIXEL)))
          (SETQ RADIUS (RAND MINWIDTH MAXWIDTH))
          [PROGN (SETQ CX1 (RAND 0 MAXX))
                 (SETQ CY1 (RAND 0 MAXY))
                 (SETQ COLOR1 (RAND 0 (SUB1 NCOLORS)))
                 (SETQ DELTA1 (EXPT 2 (RAND 0 (SUB1 BITSPERPIXEL]
          [PROGN (SETQ CX2 (RAND 0 MAXX))
                 (SETQ CY2 (RAND 0 MAXY))
                 (SETQ COLOR2 (RAND 0 (SUB1 NCOLORS)))
                 (SETQ DELTA2 (EXPT 2 (RAND 0 (SUB1 BITSPERPIXEL]
          [PROGN (SETQ CX3 (RAND 0 MAXX))
                 (SETQ CY3 (RAND 0 MAXY))
                 (SETQ COLOR3 (RAND 0 (SUB1 NCOLORS)))
                 (SETQ DELTA3 (EXPT 2 (RAND 0 (SUB1 BITSPERPIXEL]
          (for THETA from 0 to 44 by 5 do (SETQ C (FTIMES RADIUS (COS THETA)))
                                          (SETQ S (FTIMES RADIUS (SIN THETA)))
                                          (PROGN (CD.STARSHINE CX1 CY1 C S WINDOW COLOR1)
                                                 (SETQ COLOR1 (IMOD (IPLUS COLOR1 DELTA1)
                                                                    NCOLORS)))
                                          (PROGN (CD.STARSHINE CX2 CY2 C S WINDOW COLOR2)
                                                 (SETQ COLOR2 (IMOD (IPLUS COLOR2 DELTA2)
                                                                    NCOLORS)))
                                          (PROGN (CD.STARSHINE CX3 CY3 C S WINDOW COLOR3)
                                                 (SETQ COLOR3 (IMOD (IPLUS COLOR3 DELTA3)
                                                                    NCOLORS])


(CD.STARSHINE
  [LAMBDA (CX1 CY1 C S WINDOW COLOR)                            (* kbr%: "23-Feb-86 16:57")
    (PROG NIL
          (DRAWLINE (IDIFFERENCE CX1 C)
                    (IDIFFERENCE CY1 S)
                    (IPLUS CX1 C)
                    (IPLUS CY1 S)
                    1
                    'REPLACE WINDOW COLOR)
          (DRAWLINE (IDIFFERENCE CX1 C)
                    (IPLUS CY1 S)
                    (IPLUS CX1 C)
                    (IDIFFERENCE CY1 S)
                    1
                    'REPLACE WINDOW COLOR)
          (DRAWLINE (IDIFFERENCE CX1 S)
                    (IPLUS CY1 C)
                    (IPLUS CX1 S)
                    (IDIFFERENCE CY1 C)
                    1
                    'REPLACE WINDOW COLOR)
          (DRAWLINE (IPLUS CX1 S)
                    (IPLUS CY1 C)
                    (IDIFFERENCE CX1 S)
                    (IDIFFERENCE CY1 C)
                    1
                    'REPLACE WINDOW COLOR])
)


          (* * Peano demo *)

(FILESLOAD (FROM LISPUSERS)
       PEANO)
```

```
(DEFINEQ

(COLORPEANODEMO
  [LAMBDA (WAIT WINDOW)                                            (* kbr%: " 3-Sep-86 20:13")
    (PROG (BITSPERPIXEL MAXCOLOR MAXSHADE LEVEL SCALE)
          (WINDOWPROP WINDOW 'TITLE "PEANO")
          (SETQ BITSPERPIXEL (BITSPERPIXEL WINDOW))
          (SETQ MAXCOLOR (MAXIMUMCOLOR BITSPERPIXEL))
          (SETQ MAXSHADE (MAXIMUMSHADE BITSPERPIXEL))
          (CD.QUITP (OR WAIT 120))
          (until (CD.QUITP) do (DSPCOLOR (RAND 0 MAXCOLOR)
                                        WINDOW)
                               (DSPTEXTURE (RAND 0 MAXSHADE)
                                        WINDOW)
                               (DSPBACKCOLOR (RAND 0 MAXCOLOR)
                                        WINDOW)
                               (SETQ LEVEL (RAND 4 6))
                               (SETQ SCALE (IQUOTIENT (IMAX (BITMAPWIDTH WINDOW)
                                                            (BITMAPHEIGHT WINDOW))
                                                      (EXPT 2 LEVEL)))
                               (SETQ PEANOWINDOW WINDOW)
                               (PEANODEMO LEVEL SCALE])

)


                (* * Bubble demo *)

(DEFINEQ

(BUBBLEDEMO
  [LAMBDA (WAIT WINDOW)                                            (* kbr%: " 3-Sep-86 20:13")
    (PROG (MAXX MAXY MAXCOLOR MAXWIDTH MINWIDTH HOLLOW)
          (WINDOWPROP WINDOW 'TITLE "BUBBLE")
          (CLEARW WINDOW)
          (SETQ MAXX (SUB1 (BITMAPWIDTH WINDOW)))
          (SETQ MAXY (SUB1 (BITMAPHEIGHT WINDOW)))
          (SETQ MAXCOLOR (MAXIMUMCOLOR (BITSPERPIXEL WINDOW)))
          (SETQ MAXWIDTH (IQUOTIENT (IMIN MAXX MAXY)
                                    8))
          (SETQ MINWIDTH (IQUOTIENT MAXWIDTH 6))
          (COND
            ((EQ (RAND 0 1)
                 1)
             (SETQ HOLLOW T)))
          (CD.QUITP (OR WAIT 120))
          (until (CD.QUITP NIL) do (CD.BUBBLE (RAND 0 MAXX)
                                              (RAND 0 MAXY)
                                              (RAND MINWIDTH MAXWIDTH)
                                              HOLLOW WINDOW])


(CD.BUBBLE
  [LAMBDA (CENTERX CENTERY RADIUS HOLLOW WINDOW)                   (* kbr%: "29-Jul-85 18:09")
    (PROG (MAXCOLOR)
          (SETQ MAXCOLOR (MAXIMUMCOLOR (BITSPERPIXEL WINDOW)))
          (FILLCIRCLE CENTERX CENTERY RADIUS (RAND 0 MAXCOLOR)
                 WINDOW)
          (COND
            (HOLLOW (FILLCIRCLE CENTERX CENTERY (SUB1 RADIUS)
                           0 WINDOW])

)


                (* * Overpaint demo *)

(DEFINEQ

(OVERPAINTDEMO
  [LAMBDA (WAIT)                                                  (* kbr%: " 3-Sep-86 20:14")
    (PROG (BITMAP BITSPERPIXEL MAXCOLOR WIDTH HEIGHT X Y)
          (WINDOWPROP CD.WINDOW1 'TITLE "MASK")
          (WINDOWPROP CD.WINDOW2 'TITLE "BACKGROUND")
          (WINDOWPROP CD.WINDOW3 'TITLE "INPUT")
          (WINDOWPROP CD.WINDOW4 'TITLE "OUTPUT")
          (SETQ BITSPERPIXEL (BITSPERPIXEL CD.WINDOW1))
          (SETQ MAXCOLOR (MAXIMUMCOLOR BITSPERPIXEL))
          (SETQ WIDTH (BITMAPWIDTH CD.WINDOW1))
          (SETQ HEIGHT (BITMAPHEIGHT CD.WINDOW1))
          [COND
            ((NULL CD.OVERPAINTBITMAPS)
             (SETQ CD.OVERPAINTBITMAPS (for STRING in '("Interlisp-D" "Xerox" "Color")
                                            collect (BITMAPFROMSTRING STRING (FONTCREATE 'TIMESROMAND 36)
                                                          BITSPERPIXEL]
          (CD.QUITP (OR WAIT 120))
```

```
                (until (CD.QUITP) do (BITBLT CD.WINDOW2 NIL NIL CD.WINDOW4)
                                    (for I from 1 to (RAND 6 20)
                                       do (SETQ BITMAP (CD.NEXTELEMENT BITMAP CD.OVERPAINTBITMAPS))
                                          [SETQ X (RAND 0 (IDIFFERENCE WIDTH (BITMAPWIDTH BITMAP]
                                          [SETQ Y (RAND 0 (IDIFFERENCE HEIGHT (BITMAPHEIGHT BITMAP]
                                          (CLEARW CD.WINDOW1)
                                          (BITBLT BITMAP NIL NIL CD.WINDOW1 X Y)
                                          (BLTSHADE (RAND 0 MAXCOLOR)
                                                    CD.WINDOW3)
                                          (BITBLT CD.WINDOW1 NIL NIL CD.WINDOW3 NIL NIL NIL NIL 'INVERT 'ERASE)
                                          (BITBLT CD.WINDOW1 NIL NIL CD.WINDOW4 NIL NIL NIL NIL 'INPUT 'ERASE)
                                          (BITBLT CD.WINDOW3 NIL NIL CD.WINDOW4 NIL NIL NIL NIL 'INPUT 'PAINT])
)

(RPAQQ CD.OVERPAINTBITMAPS NIL)


           (* * Tile demo *)

(RPAQ? CD.TILEBITMAPS NIL)

(DEFINEQ

(TILEDEMO
  [LAMBDA (WAIT)                                                    (* kbr%: " 3-Sep-86 21:19")
    (PROG (WINDOWS WINDOW BITSPERPIXEL BITMAP)
          (SETQ WINDOWS (LIST CD.WINDOW1 CD.WINDOW2 CD.WINDOW3 CD.WINDOW4))
          [COND
             ((ILESSP (LENGTH CD.TILEBITMAPS)
                      4)
              (SETQ BITSPERPIXEL (BITSPERPIXEL (COLORSCREENBITMAP)))
              (for WINDOW in WINDOWS do (SETQ BITMAP (BITMAPCREATE 100 100 BITSPERPIXEL))
                                       (BITBLT WINDOW NIL NIL BITMAP)
                                       (push CD.TILEBITMAPS BITMAP]
          (CHANGEBACKGROUND (CD.RANDELEMENT CD.TILEBITMAPS)
                 (COLORSCREEN))
          (WINDOWPROP CD.WINDOW1 'TITLE "WINDOW1")
          (WINDOWPROP CD.WINDOW2 'TITLE "WINDOW2")
          (WINDOWPROP CD.WINDOW3 'TITLE "WINDOW3")
          (WINDOWPROP CD.WINDOW4 'TITLE "WINDOW4")
          (CD.QUITP (OR WAIT 120))
          (until (CD.QUITP) do (SETQ WINDOW (CD.NEXTELEMENT WINDOW WINDOWS))
                               (SETQ BITMAP (CD.RANDELEMENT CD.TILEBITMAPS))
                               (TILE BITMAP WINDOW]
)


           (* * Polygons demo *)

(FILESLOAD (FROM LISPUSERS)
      COLORPOLYGONS)

(DEFINEQ

(POLYGONSDEMO
  [LAMBDA (WAIT)                                                    (* kbr%: " 6-Jun-86 00:27")
    (PROG NIL
          (CD.QUITP (OR WAIT 120))
          (until (CD.QUITP NIL) do (COLORPOLYGON CD.WINDOW1)
                                   (COLORPOLYGON CD.WINDOW2)
                                   (COLORPOLYGON CD.WINDOW3)
                                   (COLORPOLYGON CD.WINDOW4)
                                   (COLORPOLYGONS.ROTATECOLORMAP])
)

(FILESLOAD COLOR)


           (* * Color font profile *)

(RPAQQ COLORFONTPROFILE
      ((DEFAULTFONT 1 (GACHA 10)
             (GACHA 8)
             (TERMINAL 8)
             (4DISPLAY (GACHA 10 MRR-WHITE-RED))
             (8DISPLAY (GACHA 10 MRR-WHITE-RED))
             (24DISPLAY (GACHA 10 MRR-WHITE-RED)))
       (BOLDFONT 2 (HELVETICA 10 BRR)
             (HELVETICA 8 BRR)
             (MODERN 8 BRR)
             (4DISPLAY (HELVETICA 10 BRR-WHITE-MAGENTA))
             (8DISPLAY (HELVETICA 10 BRR-WHITE-MAGENTA))
             (24DISPLAY (HELVETICA 10 BRR-WHITE-MAGENTA)))
       (LITTLEFONT 3 (HELVETICA 8)
```

```
                    (HELVETICA 6 MIR)
                    (MODERN 8 MIR)
                    (4DISPLAY (HELVETICA 8 MRR-WHITE-GREEN))
                    (8DISPLAY (HELVETICA 8 MRR-WHITE-GREEN))
                    (24DISPLAY (HELVETICA 8 MRR-WHITE-GREEN)))
          (BIGFONT 4 (HELVETICA 12 BRR)
                    (HELVETICA 10 BRR)
                    (MODERN 10 BRR)
                    (4DISPLAY (HELVETICA 12 BRR-WHITE-BLUE))
                    (8DISPLAY (HELVETICA 12 BRR-WHITE-BLUE))
                    (24DISPLAY (HELVETICA 12 BRR-WHITE-BLUE)))
          (USERFONT BOLDFONT)
          (COMMENTFONT LITTLEFONT)
          (LAMBDAFONT BIGFONT)
          (SYSTEMFONT)
          (CLISPFONT BOLDFONT)
          (CHANGEFONT)
          (PRETTYCOMFONT BOLDFONT)
          (FONT1 DEFAULTFONT)
          (FONT2 BOLDFONT)
          (FONT3 LITTLEFONT)
          (FONT4 BIGFONT)
          (FONT5 5 (HELVETICA 10 BIR)
                    (HELVETICA 8 BIR)
                    (MODERN 8 BIR))
          (FONT6 6 (HELVETICA 10 BRR)
                    (HELVETICA 8 BRR)
                    (MODERN 8 BRR))
          (FONT7 7 (GACHA 12)
                    (GACHA 12)
                    (TERMINAL 12))))
```

```
(FONTPROFILE COLORFONTPROFILE)
```

```
          (* * Create color fonts now instead of later. COLOR should already be LOADed.
          *)
```

```
(for FONTCLASS in (LIST DEFAULTFONT BOLDFONT LITTLEFONT BIGFONT) do (FONTCREATE FONTCLASS NIL NIL NIL
                                                                   '8DISPLAY))
```

```
(FONTCREATE 'TIMESROMAND 36 NIL NIL NIL '8DISPLAY)
```

```
(PUTPROPS COLORDEMO COPYRIGHT ("Venue & Xerox Corporation" 1985 1986 1990))
```

FUNCTION INDEX

VARIABLE INDEX