

File created: 26-Jun-2022 18:34:22 {DSK}<Users>kaplan>Local>medley3.5>working-medley>lispusers>LIFE.;3

changes to: (FNS EXPAND.BITMAP.VERTICALLY EXPAND.BITMAP.HORIZONTALLY)

previous date: 6-Dec-2021 15:21:48 {DSK}<Users>kaplan>Local>medley3.5>working-medley>lispusers>LIFE.;2

Read Table: XCL

Package: INTERLISP

Format: XCCS

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(RPAQQ LIFECOMS

```
((PROP FILETYPE LIFE)
 (FUNCTIONS |Life| |LifeIdle|)
 (FNS EXPAND.BITMAP.VERTICALLY EXPAND.BITMAP.HORIZONTALLY)
 (ADDVARS (IDLE.FUNCTIONS ("Life" '|LifeIdle|' NIL (SUBITEMS ("Single bits" '|LifeIdle|'
 ("Double bits" '(LAMBDA (\w)
 (|LifeIdle| \w 2)))
 ("Quadruple bits" '(LAMBDA (\w)
 (|LifeIdle| \w 4)))
 ("Eight bits" '(LAMBDA (\w)
 (|LifeIdle| \w 8))))))))))
```

(PUTPROPS LIFE FILETYPE :COMPILE-FILE)

(CL:DEFUN |Life| (WIN &OPTIONAL (N 1))

```
(LET* ((W (WINDOWPROP WIN 'WIDTH))
 (W1 (IDIFFERENCE W N))
 (H (IQUOTIENT (WINDOWPROP WIN 'HEIGHT)
 N))
 (H1 (SUB1 H))
 (A (BITMAPCREATE W H))
 (B (BITMAPCREATE W H))
 (C (BITMAPCREATE W H))
 (D (BITMAPCREATE W H))
 (E (BITMAPCREATE W H))
 PBT TEMP)
```

```
(|if| (NEQ N 1)
 |then| (SETQ TEMP (BITMAPCREATE (IQUOTIENT W N)
 H))
 (SETQ PBT (|create| PILOTBTT))
 (BITBLT WIN 0 0 TEMP 0 0)
 (EXPAND.BITMAP.HORIZONTALLY TEMP N A PBT)
 (SETQ TEMP (BITMAPCREATE W (WINDOWPROP WIN 'HEIGHT)))
 (BITBLT A 0 0 TEMP 0 0 W H)
 |else| (BITBLT WIN 0 0 A 0 0 W H))
 (CL:LOOP (BLOCK)
```

```
(CL:MACROLET ((BITBLTBITMAP (SOURCE SOURCELEFT SOURCEBOTTOM DESTINATION DESTINATIONLEFT
DESTINATIONBOTTOM WIDTH HEIGHT &OPTIONAL SOURCETYPE OPERATION
```

```
)
`(\BITBLT.BITMAP ,SOURCE ,SOURCELEFT ,SOURCEBOTTOM ,DESTINATION
,DESTINATIONLEFT
,DESTINATIONBOTTOM
,WIDTH
,HEIGHT
,SOURCETYPE
,OPERATION NIL NIL ,SOURCELEFT ,SOURCEBOTTOM))
(SHUFFLE (INHI LO HORIZ?)
```

```
`(PROGN ,@( |if| HORIZ?
|then| `((BITBLTBITMAP ,INHI N 0 ,LO 0 0 W1 H)
(BITBLTBITMAP ,INHI 0 0 ,LO W1 0 N H)
(BITBLTBITMAP ,INHI 0 0 C N 0 W1 H)
(BITBLTBITMAP ,INHI W1 0 C 0 0 N H))
|else| `((BITBLTBITMAP ,INHI 0 1 ,LO 0 0 W H1)
(BITBLTBITMAP ,INHI 0 0 ,LO 0 H1 W 1)
(BITBLTBITMAP ,INHI 0 0 C 0 1 W H1)
(BITBLTBITMAP ,INHI 0 H1 C 0 0 W 1)))
(BITBLTBITMAP C 0 0 ,LO 0 0 W H 'INPUT 'INVERT)
(BITBLTBITMAP ,LO 0 0 C 0 0 W H 'INPUT 'ERASE)
(BITBLTBITMAP ,INHI 0 0 ,LO 0 0 W H 'INPUT 'INVERT)
(BITBLTBITMAP ,LO 0 0 ,INHI 0 0 W H 'INPUT 'ERASE)
(BITBLTBITMAP C 0 0 ,INHI 0 0 W H 'INPUT 'PAINT))))
```

```
(SHUFFLE A B T)
(SHUFFLE B D NIL)
(SHUFFLE A E NIL)
(BITBLTBITMAP D 0 0 C 0 0 W H)
(BITBLTBITMAP B 0 0 C 0 0 W H 'INPUT 'INVERT)
(BITBLTBITMAP E 0 0 C 0 0 W H 'INPUT 'INVERT)
(|if| (EQ N 1)
|then| (BITBLT WIN 0 0 D 0 0 W H 'INPUT 'PAINT)
|else| (BITBLTBITMAP TEMP 0 0 D 0 0 W H 'INPUT 'PAINT))
(|if| (SHIFTDOWNP 'CTRL)
|then| (BITBLTBITMAP D 0 0 A 0 0 W H)
|else| (BITBLTBITMAP B 0 0 E 0 0 W H 'INPUT 'PAINT))
```

```

(BITBLTBITMAP E 0 0 A 0 0 W H 'INPUT 'INVERT)
(BITBLTBITMAP C 0 0 A 0 0 W H 'INPUT 'ERASE)
(BITBLTBITMAP D 0 0 A 0 0 W H 'INVERT 'ERASE))
(|if| (EQ N 1)
|then| (BITBLT A 0 0 WIN 0 0 W H)
|else| (EXPAND.BITMAP.VERTICALLY A N TEMP PBT)
(BITBLT TEMP 0 0 WIN 0 0)
(BITBLTBITMAP A 0 0 TEMP 0 0 W H))))))

```

```

(CL:DEFUN |Lifeldle| (\w &OPTIONAL (\n 1))
(BITBLT (WINDOWPROP \w 'IMAGECOVERED)
0 0 \w)
(|Life| \w \n))

```

(DEFINEQ

(EXPAND.BITMAP.VERTICALLY

(LAMBDA (BITMAP M BM2 PBT)

;; Edited 26-Jun-2022 18:29 by rmk: Change (add ... to (SETQ xx (PLUS xxx ..)) because "with" gets confused

;; Edited 6-Dec-2021 15:04 by medley

;; Edited 6-Dec-2021 14:47 by medley

;; Edited 6-Dec-2021 13:54 by medley

;; Edited 6-Dec-2021 13:51 by medley

;; Edited 6-Dec-2021 13:11 by medley

;; Edited 6-Mar-87 15:02 by Masinter

```

(OR BM2 (SETQ BM2 (BITMAPCREATE (|fetch| BITMAPWIDTH BITMAP)
(TIMES M (|fetch| BITMAPHEIGHT BITMAP))))))

```

```

(OR PBT (SETQ PBT (|create| PILOTBTT)))
(|with| PILOTBTT PBT
(*)

```

```

(SETQ PBTDESTHI (|ffetch| |BitMapHiLoc| BM2))
(SETQ PBTDESTLO (|ffetch| |BitMapLoLoc| BM2))
(SETQ PBTSOURCEHI (|ffetch| |BitMapHiLoc| BITMAP))
(SETQ PBTSOURCELO (|ffetch| |BitMapLoLoc| BITMAP))
(SETQ PBTDESTBPL (TIMES 16 M (|ffetch| BITMAPRASTERWIDTH BM2)))
(SETQ PBTSOURCEBPL (TIMES 16 (|ffetch| BITMAPRASTERWIDTH BITMAP)))
(SETQ PBTSOURCEBIT 0)
(SETQ PBTDESTBIT 0)
(SETQ PBTFLAGS 16384)
(SETQ PBTHEIGHT (|fetch| BITMAPHEIGHT BITMAP))
(SETQ PBTWIDTH (|fetch| BITMAPWIDTH BITMAP))
(|for| I |from| 1 |to| M |do| (\\PILOTBITBLT PBT 0) ; RMK: Can't use add here, expansion self expansion gets
; confused
(SETQ PBTDESTLO (PLUS PBTDESTLO (|fetch| BITMAPRASTERWIDTH |of| BM2)))
\n))

```

BM2))

(EXPAND.BITMAP.HORIZONTALLY

(LAMBDA (BITMAP N BM2 PBT)

;; Edited 26-Jun-2022 18:34 by rmk: ADD doesn't expand properly under WITH, at least masterscope complains. So expanded it here

;; Edited 26-Jun-2022 18:30 by rmk

;; Edited 6-Mar-87 17:08 by Masinter

```

(OR BM2 (SETQ BM2 (BITMAPCREATE (TIMES N (|fetch| BITMAPWIDTH BITMAP)
(|fetch| BITMAPHEIGHT BITMAP))))))

```

```

(OR PBT (SETQ PBT (|create| PILOTBTT)))

```

```

(LET ((SOURCEBASE (|fetch| BITMAPBASE BITMAP))
(DESTBASE (|fetch| BITMAPBASE BM2)))
(|with| PILOTBTT PBT (SETQ PBTDESTBPL N)
(SETQ PBTSOURCEBPL 1)
(SETQ PBTSOURCEBIT 0)
(SETQ PBTFLAGS 16384)
(SETQ PBTWIDTH 1)
(LET ((HT (TIMES (|fetch| BITMAPWIDTH BITMAP)
(|fetch| BITMAPHEIGHT BITMAP))))
(|do| (SETQ PBTDEST DESTBASE)
(SETQ PBTSOURCE SOURCEBASE)
(SETQ PBTHEIGHT (MIN (TIMES 1024 16)
HT))
(SETQ PBTDESTBIT 0)
(|for| I |from| 0 |while| (LESSP I N) |do| (\\PILOTBITBLT PBT 0)
(SETQ PBTDESTBIT (PLUS PBTDESTBIT 1)))
(SETQ HT (- HT (TIMES 1024 16)))
(|if| (LEQ HT 0)
|then| (RETURN))
(SETQ DESTBASE (\\ADDBASE DESTBASE (TIMES N 1024)))
(SETQ SOURCEBASE (\\ADDBASE SOURCEBASE 1024))))))

```

BM2))

)

```
(ADDTOVAR IDLE.FUNCTIONS
  ("Life" ' |LifeIdle| NIL (SUBITEMS ("Single bits" ' |LifeIdle|)
    ("Double bits" ' (LAMBDA (\w)
      (|LifeIdle| \w 2)))
    ("Quadruple bits" ' (LAMBDA (\w)
      (|LifeIdle| \w 4)))
    ("Eight bits" ' (LAMBDA (\w)
      (|LifeIdle| \w 8))))))

(PUTPROPS LIFE COPYRIGHT ("Xerox Corporation" 1987 1988))
```

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