

File created: 24-Aug-2022 08:54:17 {DSK}<home>larry>medley>lispusers>STARBG.;2

changes to: (FNS Cosmos)

previous date: 17-Aug-88 03:26:58 {DSK}<home>larry>medley>lispusers>STARBG.;1

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

::
:: Copyright (c) 1984-1988 by Xerox Corporation.

(RPAQQ **STARBGCOMS**

```
  [(INITVARS (eventPause 0)
             (changeStars NIL)
             (starShade WHITESHADE)
             (voidShade BLACKSHADE)
             (stars1 '(500 . 3000))
             (stars2 '(40 . 400))
             (stars3 '(6 . 70))
             (stars4 '(1 . 3))
             (stars5 '(1 . 10))
             (constellations '(1 . 9))
             (clusters '(0 . 5))
             (clusterRadius '(5 . 15))
             (starsInCluster '(50 . 150))
             (superClusters '(0 . 1))
             (superClusterRadius '(8 . 20))
             (interiorClusters '(2 . 7))
             (starsInterior '(30 . 100))
             (BM1 (SETQ BM1 (BITMAPCREATE 1 1)))
             (BM2 (BITMAPCREATE 2 2))
             (BM4 (BITMAPCREATE 3 3))
             (BITMAPS BM3 BM5 nova)
             (VARS noReverseVideo saucer darkSaucer saucerMask supernova STARBGParameters trekNotes)
             (FNS Between BlackHole Catastrophe ChanceIn CloseFollower Constellation Cosmos InvertBM FillWithStars
                  Marble OneChanceIn LowerBound OpenFollower PlusOrMinus RandGrey SaucerOn SaucerOff STARBG
                  StarCluster SuperCluster SomethingCosmic StarFollowCursor StarryWindow Stomp TimePasses UFO
                  UpperBound)
             (DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILEVARS (ADDVARS (NLAMA)
                                          (NLAML)
                                          (LAMA)))

             (P (RANDSET T)
               (OR (BOUNDP 'cursorFollower)
                  (SETQ cursorFollower (ICONW saucer saucerMask (CREATEPOSITION 0 0)
                                             T)))

               (if (BOUNDP 'IDLE.FUNCTIONS)
                   then
                   (PUSH IDLE.FUNCTIONS '("Cosmos" 'Cosmos "Go where no one has gone before... "]))
```

(RPAQQ? **eventPause** 0)

(RPAQQ? **changeStars** NIL)

(RPAQQ? **starShade** WHITESHADE)

(RPAQQ? **voidShade** BLACKSHADE)

(RPAQQ? **stars1** '(500 . 3000))

(RPAQQ? **stars2** '(40 . 400))

(RPAQQ? **stars3** '(6 . 70))

(RPAQQ? **stars4** '(1 . 3))

(RPAQQ? **stars5** '(1 . 10))

(RPAQQ? **constellations** '(1 . 9))

(RPAQQ? **clusters** '(0 . 5))

(RPAQQ? **clusterRadius** '(5 . 15))

(RPAQQ? **starsInCluster** '(50 . 150))

(RPAQQ? **superClusters** '(0 . 1))

(RPAQQ? **superClusterRadius** '(8 . 20))

(RPAQQ? **interiorClusters** '(2 . 7))

(RPAQQ? **starsInterior** '(30 . 100))


(RPAQ? **BM1** (SETQ BM1 (BITMAPCREATE 1 1)))

(RPAQ? **BM2** (BITMAPCREATE 2 2))


(RPAQ? **BM4** (BITMAPCREATE 3 3))

(RPAQQ **BM3** ::)

(RPAQQ **BM5** ::)


(RPAQQ **nova** )

(RPAQQ **noReverseVideo** NIL)

(RPAQQ **saucer** )

(RPAQQ **darkSaucer** )

(RPAQQ **saucerMask** )

(RPAQQ **supernova** )

(RPAQQ **STARBGParameters** (SBM BM1 BM2 BM3 BM4 BM5 nova supernova stars1 stars2 stars3 stars4 stars5 changeStars eventPause clusters clusterRadius constellations starsInCluster superClusters superClusterRadius interiorClusters starsInterior))

(RPAQQ **trekNotes** (<A+ D/ G+ F# E/ D/ D@/ C))

(DEFINEQ

(Between

[LAMBDA (pair)

(* gsf%: "19-Apr-85 10:33")

(* * picks an integer between limits given in the pair)

(RAND (LowerBound pair)
(UpperBound pair])

(BlackHole

[LAMBDA (win x y radius)
(OR x (SETQ x (RAND 0 SCREENWIDTH)))
(OR y (SETQ y (RAND 0 SCREENHEIGHT)))
(OR radius (SETQ radius (RAND 5 300)))
(FILLCIRCLE x y radius voidShade win)
(if (ZEROP (RAND 0 2))
then (FILLCIRCLE x y (RAND 2 5)
starShade win])

(* gsf "21-Nov-85 15:53")

(Catastrophe

[LAMBDA (win)
(LET ((extent (RAND 10 200))
(cx (RAND 0 SCREENWIDTH))
(cy (RAND 0 SCREENHEIGHT)))
(for i from 1 to extent do (Stomp win 50 (IPLUS cx (PlusOrMinus (RAND 0 extent)))
(IPLUS cy (PlusOrMinus (RAND 0 extent))

(* gsf%: "13-Aug-85 15:47")

(Chanceln

[LAMBDA (n)
(ZEROP (RAND 0 (IDIFFERENCE n 1]))

(* gsf%: "23-Oct-85 14:49")

(CloseFollower

[LAMBDA NIL
(CLOSEW cursorFollower])

(* gsf%: "28-Jun-85 11:14")

(Constellation

[LAMBDA (bitmap cx cy stars)
(OR cx (SETQ cx (RAND 0 SCREENWIDTH)))
(OR cy (SETQ cy (RAND 0 SCREENHEIGHT)))
(LET ((halfwidth (RAND 25 100))
(halfheight (RAND 25 100))
BM NEXT)
[OR stars (SETQ stars (RAND 4 (IQUOTIENT (MIN halfwidth halfheight)
3])
(for i from 1 to stars do (SETQ BM (COND
((ILESSP (SETQ NEXT (RAND 0 100))
40)

(* gsf%: "12-Nov-85 13:09")

```

BM3)
((ILESSP NEXT 60)
BM4)
((ILESSP NEXT 96)
BM5)
(T nova)))
(BITBLT BM 0 0 bitmap (IPLUS cx (PlusOrMinus (RAND 0 halfwidth)))
(IPLUS cy (PlusOrMinus (RAND 0 halfheight]))

```

(Cosmos

```

[LAMBDA (starWindow) ; Edited 24-Aug-2022 08:05 by larry
; Edited 17-Aug-88 03:25 by EWEAVER
(OR starWindow (SETQ starWindow (CREATEW WHOLEScreens NIL 0)))
(if (VIDEOCOLOR)
  then (RESETLST
    (RESETSAVE voidShade WHITESHADE)
    (RESETSAVE starShade BLACKSHADE)
    (DSPFILL NIL voidShade 'REPLACE starWindow)
    (RESETSAVE BM1 (InvertBM BM1))
    (RESETSAVE BM2 (InvertBM BM2))
    (RESETSAVE BM3 (InvertBM BM3))
    (RESETSAVE BM4 (InvertBM BM4))
    (RESETSAVE BM5 (InvertBM BM5))
    (RESETSAVE cursorFollower (ICONW darkSaucer saucerMask (CREATEPOSITION 0 0)
      T))
    (RESETSAVE nova (InvertBM nova))
    (RESETSAVE supernova (InvertBM supernova))
    (RESETSAVE NIL (LIST [FUNCTION (LAMBDA (starWindow)
      (if changeStars
        then (BITBLT (InvertBM starWindow 'inPlace)
          0 0 SBM)
          (CLOSEW starWindow)
          (CHANGEBACKGROUND SBM)
          (CLOSEW cursorFollower]
            starWindow))
      (DSPOPERATION 'REPLACE starWindow)
      (while T do (SomethingCosmic starWindow)
        (BLOCK eventPause)))
    else (DSPFILL NIL voidShade 'REPLACE starWindow)
    (DSPOPERATION 'REPLACE starWindow)
    (while T do (SomethingCosmic starWindow)
      (BLOCK 100))
    (CLOSEW starWindow])

```

(InvertBM

```

[LAMBDA (bm inPlace?) (* gsf "2-Jan-86 14:32")
(LET [(bitmap (if inPlace?
  then bm
  else (BITMAPCOPY bm)
  (BITBLT bm NIL NIL bitmap NIL NIL NIL NIL 'INVERT 'REPLACE)
  bitmap])

```

(FillWithStars

```

[LAMBDA (bitmap) (* gsf "19-Jun-86 14:01")
(** Fill a bitmap with stars and return it -- defaults to a screen sized bitmap)
(LET (width height)
  (OR bitmap (SETQ bitmap (BITMAPCREATE 1024 808)))
  (SETQ width (BITMAPWIDTH bitmap))
  (SETQ height (if (WINDOWP bitmap)
    then (WINDOWPROP bitmap 'HEIGHT)
    else (BITMAPHEIGHT bitmap)))
  (BITBLT bitmap 0 0 bitmap 0 0 width height 'INVERT 'PAINT)
  (for x from 1 to (Between stars1) do (BITMAPBIT bitmap (RAND 0 width)
    (RAND 0 height)
    (if (EQUAL voidShade BLACKSHADE)
      then 0
      else 1)))
  (for x from 1 to (Between stars2) do (BITBLT BM2 0 0 bitmap (RAND 0 width)
    (RAND 0 height)))
  (for x from 1 to (Between stars3) do (BITBLT BM3 0 0 bitmap (RAND 0 width)
    (RAND 0 height)))
  (for x from 1 to (Between stars4) do (BITBLT BM4 0 0 bitmap (RAND 0 width)
    (RAND 0 height)))
  (for x from 1 to (Between stars5) do (BITBLT BM5 0 0 bitmap (RAND 0 width)
    (RAND 0 height)))
  (if (Chanceln 5)
    then (BITBLT nova 0 0 bitmap (RAND 0 width)
      (RAND 0 height)))
  (if (Chanceln 100)
    then (BITBLT supernova 0 0 bitmap (RAND 0 width)
      (RAND 0 height)))
  (for x from 1 to (Between constellations) do (Constellation bitmap))

```

```

    (for x from 1 to (Between clusters) do (StarCluster (Between clusterRadius)
                                                    (RAND 0 width)
                                                    (RAND 0 height)
                                                    NIL bitmap))
    (for x from 1 to (Between superClusters) do (SuperCluster (Between superClusterRadius)
                                                              (RAND 0 width)
                                                              (RAND 0 height)
                                                              (Between interiorClusters)
                                                              NIL bitmap))
  bitmap])

```

(Marble

```

[LAMBDA (bm) (* gsf " 1-Apr-87 13:32")
  (RESETLST
    (RESETSAVE stars1 '(100000 . 200000))
    (RESETSAVE stars2 '(400 . 2000))
    (RESETSAVE stars3 '(1000 . 4000))
    (RESETSAVE stars4 '(400 . 2000))
    (RESETSAVE stars5 '(200 . 400))
    (RESETSAVE clusters '(50 . 100))
    (RESETSAVE clusterRadius '(5 . 15))
    (RESETSAVE starsInCluster '(50 . 150))
    (RESETSAVE superClusters '(20 . 50))
    (RESETSAVE superClusterRadius '(8 . 20))
    (RESETSAVE interiorClusters '(2 . 7))
    (RESETSAVE starsInterior '(30 . 100))
    (FillWithStars bm))]

```

(OneChanceIn

```

[LAMBDA (n) (* gsf%: "23-Oct-85 15:04")
  (ChanceIn n)]

```

(LowerBound

```

[LAMBDA (pair) (* edited%: " 5-Apr-85 17:33")
  (** comment)
  (CAR pair)]

```

(OpenFollower

```

[LAMBDA NIL (* gsf%: "11-Oct-85 15:15")
  (OPENW cursorFollower)
  (StarFollowCursor)]

```

(PlusOrMinus

```

[LAMBDA (x) (* gsf%: "25-Jun-84 18:02")
  (ITIMES x (COND
    ((ZEROP (RAND 0 1))
     -1)
    (T 1))]

```

(RandGrey

```

[LAMBDA (bitmap) (* gsf " 1-Apr-87 14:00")
  (LET (width height)
    (OR bitmap (SETQ bitmap (BITMAPCREATE 1024 808)))
    (SETQ width (BITMAPWIDTH bitmap))
    (SETQ height (if (WINDOWP bitmap)
                     then (WINDOWPROP bitmap 'HEIGHT)
                     else (BITMAPHEIGHT bitmap))))
  (BITBLT bitmap 0 0 bitmap 0 0 width height 'INVERT 'PAINT)
  (for x from 1 to (RAND (IQUOTIENT (TIMES width height)
                                     2))
    (TIMES width height))
    do (BITMAPBIT bitmap (RAND 0 width)
      (RAND 0 height)
      0))
  bitmap])

```

(SaucerOn

```

[LAMBDA NIL (* gsf%: "11-Oct-85 15:16")
  (SETQ BACKGROUNDDCURSORINFN 'OpenFollower)
  (SETQ BACKGROUNDDCURSORMOVEDFN 'StarFollowCursor)
  (SETQ BACKGROUNDDCURSOROUTFN 'CloseFollower)
  'TakeMeToYourLeader)]

```

(SaucerOff

```

[LAMBDA NIL (* edited%: " 7-Aug-85 18:12")
  (SETQ BACKGROUNDDCURSORINFN NIL)
  (SETQ BACKGROUNDDCURSORMOVEDFN NIL)]

```

(SETQ BACKGROUNDCURSOROUTFN NIL)
(CLOSEW cursorFollower])

(STARBG

(* gsf "11-Dec-85 15:09")

[LAMBDA (tuneFLG)
(SETQ SBM (FillWithStars (AND (BOUNDP 'SBM)
(BITMAPP SBM)
SBM)))
(AND tuneFLG (GETD 'PLAY.NOTES)
(Enterprise))
(if (NEQ tuneFLG 'NO)
then (CHANGEBACKGROUND BORDER BLACKSHADE)
(SaucerOn)
(CHANGEBACKGROUND SBM])

(StarCluster

(* gsf "21-Nov-85 15:04")

[LAMBDA (radius cx cy numStars bitmap)
[OR numStars (SETQ numStars (RAND 10 (EXPT (if (Chanceln 20)
then radius
else (IDIFFERENCE radius 3))
2])
(LET ((dither (IQUOTIENT radius 2))
NEXT BM)
(for x from 1 to numStars do
[SETQ BM (COND
((ILESSP (SETQ NEXT (RAND 0 100))
70)
BM1)
((ILESSP NEXT 83)
BM2)
((ILESSP NEXT 96)
BM3)
((ILESSP NEXT 100)
BM5)
(T (if (Chanceln 1000)
then supernova
elseif (Chanceln 50)
then nova
else BM4] (* put the star in a random constrained place)
(BITBLT BM 0 0 bitmap (IPLUS cx (PlusOrMinus (EXPT (RAND 1 (SUB1 radius))
2))
(RAND (MINUS dither)
dither))
(IPLUS cy (PlusOrMinus (EXPT (RAND 1 (SUB1 radius))
2))
(RAND (MINUS dither)
dither]))

(SuperCluster

(* gsf "21-Nov-85 15:05")

[LAMBDA (radius cx cy numberOfClusters maxStars bitmap)
(LET (rad)
(for x from 1 to numberOfClusters do (StarCluster (SETQ rad (RAND 5 radius))
(IPLUS (PlusOrMinus (RAND 0 radius)
cx)
(IPLUS (PlusOrMinus (RAND 0 radius)
cy)
(if maxStars
then (RAND 25 maxStars)
else (EXPT (SUB1 rad)
2))
bitmap]))

(SomethingCosmic

(* gsf "21-Nov-85 16:41")

[LAMBDA (bitmap)
(* * gsf%: "14-Aug-85 16:24")
(LET [(x (RAND 0 1000))
(width (BITMAPWIDTH bitmap))
(height (if (WINDOWP bitmap)
then (WINDOWPROP bitmap 'HEIGHT)
else (BITMAPHEIGHT bitmap))]
(if (LESSP x 600)
then (BITMAPBIT bitmap (RAND 0 width)
(RAND 0 height)
(if (EQUAL voidShade BLACKSHADE)
then 0
else 1))
[if (ZEROP (RAND 0 100))
then (for i from 1 to 100 do (BITMAPBIT bitmap (RAND 0 width)
(RAND 0 height)
(if (EQUAL voidShade BLACKSHADE)
then 0

```

else 1]
elseif (LESSP x 700)
  then (BITBLT BM2 0 0 bitmap (RAND 0 width)
        (RAND 0 height))
elseif (LESSP x 720)
  then (BITBLT BM3 0 0 bitmap (RAND 0 width)
        (RAND 0 height))
elseif (LESSP x 725)
  then [LET ((bm BM4))
        (if (Chanceln 50)
            then (if (Chanceln 10)
                    then (SETQ bm supernova)
                    else (SETQ bm nova))
            else (BITBLT bm 0 0 bitmap (RAND 0 width)
                (RAND 0 height))]
elseif (LESSP x 740)
  then (BITBLT BM5 0 0 bitmap (RAND 0 width)
        (RAND 0 height))
elseif (LESSP x 745)
  then (Constellation bitmap)
elseif (LESSP x 747)
  then (StarCluster (Between clusterRadius)
        (RAND 0 width)
        (RAND 0 height)
        NIL bitmap)
elseif (LESSP x 748)
  then (SuperCluster (Between superClusterRadius)
        (RAND 0 width)
        (RAND 0 height)
        (Between interiorClusters)
        NIL bitmap)
elseif (LESSP x 752)
  then (SELECTQ (RAND 0 7)
        (0 (if (BITMAPP bitmap)
              then (Catastrophe bitmap)
              else (if (Chanceln 4)
                      then (for i from 1 to (RAND 2 5) do (BlackHole bitmap))
                      else (BlackHole bitmap))))
        ((1 2 3 4)
         (if (Chanceln 3)
             then (for i from 1 to (RAND 2 9) do (Catastrophe bitmap))
             else (Catastrophe bitmap)))
        (5 (if (BITMAPP bitmap)
              then (Catastrophe bitmap)
              else (UFO)))
        (6 (for i from 1 to (RAND 2 9) do (SELECTQ (RAND 0 5)
            ((0 1 2)
             (Catastrophe bitmap))
            ((3 4)
             (if (BITMAPP bitmap)
                 then (Catastrophe bitmap)
                 else (BlackHole bitmap))))
            (TimePasses bitmap))))
        (TimePasses bitmap)))
  else (Stomp bitmap])

```

(StarFollowCursor

```

[LAMBDA NIL (* gsf%: "23-Oct-85 16:16")
  (LET ((oldRegion (WINDOWPROP cursorFollower 'REGION))
        (x (DIFFERENCE LASTMOUSEX 25))
        (y (DIFFERENCE LASTMOUSEY 17)))
    (if (OR (NEQ (fetch LEFT of oldRegion)
                x)
           (NEQ (fetch BOTTOM of oldRegion)
                y))
        then (MOVEW cursorFollower x y])

```

(StarryWindow

```

[LAMBDA (win) (* gsf%: " 9-Aug-85 10:57")
  (RESETLST
   (RESETSAVE stars1 (CONS 10 1000))
   (RESETSAVE stars1 (CONS 10 1000))
   (RESETSAVE stars2 (CONS 10 500))
   (RESETSAVE stars3 (CONS 10 200))
   (RESETSAVE stars4 (CONS 1 3))
   (RESETSAVE stars5 (CONS 1 5))
   (RESETSAVE clusters (CONS 0 3))
   (RESETSAVE starsInCluster (CONS 10 30))
   (RESETSAVE superClusters (CONS 0 1))
   (RESETSAVE starsInterior (CONS 10 50))
   (OR win (SETQ win (CREATEW NIL NIL 0)))
   (FillWithStars win)))

```

(Stomp

```
[LAMBDA (win footprint x y)
  (OR footprint (SETQ footprint 40))
  [OR x (SETQ x (RAND (MINUS footprint)
    (if (WINDOWP win)
      then (WINDOWPROP win 'WIDTH)
      else (BITMAPWIDTH win)
    [OR y (SETQ y (RAND (MINUS footprint)
      (if (WINDOWP win)
        then (WINDOWPROP win 'HEIGHT)
        else (BITMAPHEIGHT win)
      (BITBLT NIL NIL NIL win x y (RAND 1 footprint)
        (RAND 1 footprint)
        'TEXTURE
        'REPLACE voidShade])
  (* gsf "21-Nov-85 15:53")
```

(TimePasses

```
[LAMBDA (win)
  (for i from 1 to (RAND 100 4000) do (Stomp win 30])
  (* gsf%: "13-Aug-85 16:05")
```

(UFO

```
[LAMBDA NIL
  (LET ((x (RAND 0 SCREENWIDTH))
    (y (RAND 0 SCREENHEIGHT))
    (deltaX (RAND -7 7))
    (deltaY (RAND -7 7)))
    (MOVEW cursorFollower x y)
    (OPENW cursorFollower)
    [until (OR (LESSP x 0)
      (LESSP y 0)
      (GREATERP x SCREENWIDTH)
      (GREATERP y SCREENHEIGHT))
      do (MOVEW cursorFollower (SETQ x (IPLUS x deltaX))
        (SETQ y (IPLUS y deltaY)))
      (if (ZEROP (RAND 0 15))
        then (SETQ deltaX (RAND -7 7)))
      (if (ZEROP (RAND 0 15))
        then (SETQ deltaY (RAND -7 7)))
      (if (ZEROP (RAND 0 30))
        then (BLOCK (RAND 10 1001)
          (CLOSEW cursorFollower]))
  (* gsf "14-Nov-85 10:33")
```

(UpperBound

```
[LAMBDA (pair)
  (* * comment)
  (CDR pair])
  (* edited%: " 5-Apr-85 17:34")
```

)

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

(ADDTOVAR NLAMA)

(ADDTOVAR NLAML)

(ADDTOVAR LAMA)

(RANDSET T)

```
(OR (BOUNDP 'cursorFollower)
  (SETQ cursorFollower (ICONW saucer saucerMask (CREATEPOSITION 0 0)
    T)))
```

```
[if (BOUNDP 'IDLE.FUNCTIONS)
  then (PUSH IDLE.FUNCTIONS '("Cosmos" 'Cosmos "Go where no one has gone before... ")
```

(PUTPROPS STARBG COPYRIGHT ("Xerox Corporation" 1984 1985 1986 1987 1988))

FUNCTION INDEX

Between	2	Cosmos	3	OpenFollower	4	STARBG	5	TimePasses	7
BlackHole	2	FillWithStars	3	PlusOrMinus	4	StarCluster	5	UFO	7
Catastrophe	2	InvertBM	3	RandGrey	4	StarFollowCursor ..	6	UpperBound	7
ChanceIn	2	LowerBound	4	SaucerOff	4	StarryWindow	6		
CloseFollower	2	Marble	4	SaucerOn	4	Stomp	6		
Constellation	2	OneChanceIn	4	SomethingCosmic ..	5	SuperCluster	5		

VARIABLE INDEX

BM1	2	clusterRadius	1	noReverseVideo	2	stars2	1	starsInterior	1
BM2	2	clusters	1	nova	2	stars3	1	superClusterRadius	1
BM3	2	constellations	1	saucer	2	stars4	1	superClusters	1
BM4	2	darkSaucer	2	saucerMask	2	stars5	1	supernova	2
BM5	2	eventPause	1	STARBGParameters ..	2	starShade	1	trekNotes	2
changeStars	1	interiorClusters ..	1	stars1	1	starsInCluster	1	voidShade	1
