

File created: 27-Feb-2024 20:25:02 {DSK}<home>larry>il>medley>SPY.;1

edit by: lmm

changes to: (RECORDS FX)
(VARS SPYOBJCOMS)

previous date: 28-Jul-2023 20:13:45 {DSK}<home>larry>il>medley>library>SPY.;1

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

(RPAQQ **SPYCOMS**

```
[ (VARS SPY.BORDERS SPY.BUFFER.SIZE SPY.FRAGMENTS SPY.NOMERGEFNS SPY.MERGEINFO (SPY.HASH)
  (SPY.GRAPH.MENU)
  SPY.SHOW.PERCENTAGES SPY.SMALLGHOSTS SPY.ICON)
  (INITVARS (SPY.NEXT 0)
    (SPY.BUFFER)
    (SPY.SHOWCOUNTS T)
    (SPY.SHOW.THRESHOLD 1)
    (SPY.MAXLINES 10)
    (SPY.FREQUENCY 10)
    (SPY.FONT ' (GACHA 8))
    (SPY.TREE))
  (COMS * SPYOBJCOMS)
  (FNS SPY.FIND.TREE SPY.TOGGLE SPY.TREE SPY.LEGEND SPY.GRAPH.EDITOR SPY.END SPY.MAKEGRAPHNODES SPY.MAX
    SPY.MERGE SPY.MERGE1 SPY.MERGETREE SPY.NEXT.TREE SPY.SUM SPY.TITLE SPY.MAKE.TREE SPY.UPDATE.TITLE
    SPY.DELETE SPY.DRAWBOX SPY.BUFFER.ENTRY SPY.BUTTON SPY.END.ENTRY SPY.START SPY.INIT \SPY.INTERRUPT
    SPY.DUMP.BUFFER SPY.START.ENTRY SPY.ADD.ENTRY SPY.ORIGINAL SPY.OVERFLOW SPY.MERGE.CALLEES SPY.PRINT
  )
  (COMS (INITVARS (\BACKGROUND)
    (SPY.BUTTON))
    (VARS SPY.OPEN SPY.CLOSED))
  (GLOBALVARS SPY.OVERFLOWED \PERIODIC.INTERRUPT SPY.TREE SPY.BUFFER.SIZE SPY.NEXT SPY.BUFFER.THRESHOLD
    SPY.BUFFER SPY.FREQUENCY SPY.SHOW.THRESHOLD SPY.MAXLINES SPY.FONT)
  (SPECVARS \BACKGROUND)
  (MACROS WITH-SPY WITH.SPY)
  (DECLARE%: DONTCOPY (RECORDS SPYRECORD SPYDATA))
  (INITRECORDS SPYRECORD)
  (DECLARE%: DOCOPY DOEVAL@COMPILE (FILES GRAPHER READNUMBER IMAGEOBJ))
  (P (MOVD? 'NIL 'MODERNWINDOW))
```

(RPAQQ **SPY.BORDERS**

```
((NORMAL "Normal" 2 -1)
  (GHOST "Shown elsewhere" 2 8840)
  (RECURSIVEGHOST "End of recursive chain" 2 0 -1)
  (MERGED "Includes other branches" 4 42405)
  (SELFRECURSIVE "Includes self-recursive calls" 2 61375)
  (RECURSIVE "Head of recursive chain" 4 28086)
  (ENDOFFLINE "exceeded depth limit" 6 64510)))
```

(RPAQQ **SPY.BUFFER.SIZE** 5120)

(RPAQQ **SPY.FRAGMENTS** T)

(RPAQQ **SPY.NOMERGEFNS** (SI::*UNWIND-PROTECT* CL:EVAL \EVAL-PROGN \INTERPRET-ARGUMENTS \INTERPRETER
\INTERPRETER1 ERRORSET \EVAL \EVALFORM APPLY \PROGV EVAL))

(RPAQQ **SPY.MERGEINFO**

```
((EXEC :EXEC)
  (EXEC-READ-LINE :EXEC)
  (EXEC-READ :EXEC)
  (XCL-USER::LEX-DO-EVENT :EXEC)
  (DO-EVENT :EXEC)
  (EVAL-INPUT :EXEC)
  (SI::*UNWIND-PROTECT* :ANY)
  (\MAKE.PROCESS0 T)
  (\PROC.REPEATEDLYEVALQT T)
  (\EVALFORM T :EVAL)
  (PROGN PROGN :EVAL T)
  (TTYIN1 TTYIN)
  (TTBIN TTYIN)
  (TTWAITFORINPUT TTYIN)
  (\PROGV :ANY)))
```

(RPAQQ **SPY.HASH** NIL)

(RPAQQ **SPY.GRAPH.MENU** NIL)

(RPAQQ **SPY.SHOW.PERCENTAGES** T)

(RPAQQ **SPY.SMALLGHOSTS** T)

(RPAQQ **SPY.ICON**



```

(RPAQ? SPY.NEXT 0)

(RPAQ? SPY.BUFFER )

(RPAQ? SPY.SHOWCOUNTS T)

(RPAQ? SPY.SHOW.THRESHOLD 1)

(RPAQ? SPY.MAXLINES 10)

(RPAQ? SPY.FREQUENCY 10)

(RPAQ? SPY.FONT ' (GACHA 8) )

(RPAQ? SPY.TREE )

(RPAQQ SPYOBJCOMS
  ((FNS SPYOBJ SPYOBJ.BUTTON SPYOBJ.SAVE SPYOBJ.COPY SPYOBJ.GET SPYOBJ.IMAGEBOX SPYOBJ.DISPLAY SPYOBJ.LABEL
    SPYOBJ.HEIGHT SPYOBJ.COPYIN SPY.COPYBUTTON SPY.MERGEINFO)
    [VARS (SPYOBJ.IMAGEFNS (IMAGEFNSCREATE (FUNCTION SPYOBJ.DISPLAY)
      (FUNCTION SPYOBJ.IMAGEBOX)
      (FUNCTION SPYOBJ.SAVE)
      (FUNCTION SPYOBJ.GET)
      (FUNCTION SPYOBJ.COPY)
      (FUNCTION SPYOBJ.BUTTON)
      (FUNCTION SPYOBJ.COPYIN)
      NIL NIL NIL NIL NIL NIL 'SPYNODE]
    (DECLARE%: DONTCOPY DOEVAL@COMPILE (RECORDS SPYOBJDATA))
    (INITRECORDS SPYOBJDATA)))

(DEFINEQ

(SPYOBJ
  [LAMBDA (NAME PERCENT STATUS)
    (IMAGEOBJCREATE (create SPYOBJDATA
      LABEL _ NAME
      PERCENT _ PERCENT
      CACHEDLABEL _ (LET ((*PRINT-PRETTY* NIL)
        (*PRINT-LEVEL* 1)
        (*PRINT-LENGTH* 1))
        (CL:FORMAT NIL "~D ~S" PERCENT LABEL)))
    SPYOBJ.IMAGEFNS])
; Edited 9-Sep-87 17:56 by Masinter

(SPYOBJ.BUTTON
  [LAMBDA (OBJ WINDOWSTREAM SEL RELX RELY WINDOW TEXT BUTTON)
    NIL])
(* Imm " 9-Jun-85 00:40")

(SPYOBJ.SAVE
  [LAMBDA (OBJ STREAM)
    (PRIN2 (fetch OBJECTDATUM OBJ)
      STREAM FILERDTBL])
(* edited%: "11-Jun-85 05:03")

(SPYOBJ.COPY
  [LAMBDA (OBJ)
    OBJ])
(* Imm " 9-Jun-85 00:43")

(SPYOBJ.GET
  [LAMBDA (STREAM TEXTSTREAM)
    (IMAGEOBJCREATE (READ STREAM FILERDTBL)
      SPYOBJ.IMAGEFNS])
(* Imm " 9-Jun-85 00:44")

(SPYOBJ.IMAGEBOX
  [LAMBDA (OBJ FONTSOURCE)
    (OR FONTSOURCE (SETQ FONTSOURCE SPY.FONT))
    (LET ((DATA (fetch OBJECTDATUM OBJ)))
      (LET ((HEIGHT (SPYOBJ.HEIGHT OBJ FONTSOURCE)))
        (create IMAGEBOX
          XSIZE _ (STRINGWIDTH (SPYOBJ.LABEL OBJ)
            FONTSOURCE)
          YSIZE _ HEIGHT
          YDESC _ 0
          XKERN _ 0]))
; Edited 16-Aug-88 11:07 by sye

(SPYOBJ.DISPLAY
  [LAMBDA (OBJ STREAM)
    (DSPFONT SPY.FONT STREAM)
    (LET ((DATA (fetch OBJECTDATUM OBJ)))

```

```

(LET ((HEIGHT (SPYOBJ.HEIGHT OBJ STREAM)))
  (RELMOVETO 0 (QUOTIENT (DIFFERENCE HEIGHT (QUOTIENT (FONTHEIGHT STREAM)
2)
2)
STREAM)
(PRIN3 (SPYOBJ.LABEL OBJ)
STREAM])

```

(SPYOBJ.LABEL

```

[LAMBDA (OBJ) (* Imm " 9-Jun-85 01:24")
  (LET ((DATUM (fetch OBJECTDATUM OBJ)))
    (with SPYOBJDATA DATUM CACHEDLABEL]))

```

(SPYOBJ.HEIGHT

```

[LAMBDA (OBJ STREAM) (* Imm " 9-Jun-85 00:51")
  (LET ((DATUM (fetch OBJECTDATUM OBJ))
        (FH (FONTHEIGHT STREAM)))
    (with SPYOBJDATA DATUM (MAX FH (QUOTIENT (TIMES PERCENT SPY.MAXLINES FH)
100))

```

(SPYOBJ.COPYIN

```

[LAMBDA (A B C)
  (HELP)]

```

(SPY.COPYBUTTON

```

[LAMBDA (WINDOW) (* Imm " 9-Jun-85 01:55")
  (SPY.GRAPH.EDITOR WINDOW T)]

```

(SPY.MERGEINFO

```

[LAMBDA (NAME SPYDATA PARENT-NAME) ; Edited 28-Apr-94 14:00 by sybalsky
  (OR [AND (fetch (SPYDATA MERGEINFO) of SPYDATA)
        (for x in (fetch (SPYDATA MERGEINFO) of SPYDATA) when (AND (EQ (CAR X)
NAME)
(FMEMB PARENT-NAME (CDR X)))
        do (RETURN (CDR X)
(CDR (FASSOC NAME SPY.MERGEINFO))
(if (STRPOS "\interpret-" NAME)
then ' (:INTERPRETER CL:EVAL])
)

```

(RPAQ SPYOBJ.IMAGEFNS

```

(IMAGEFNSCREATE (FUNCTION SPYOBJ.DISPLAY)
  (FUNCTION SPYOBJ.IMAGEBOX)
  (FUNCTION SPYOBJ.SAVE)
  (FUNCTION SPYOBJ.GET)
  (FUNCTION SPYOBJ.COPY)
  (FUNCTION SPYOBJ.BUTTON)
  (FUNCTION SPYOBJ.COPYIN)
  NIL NIL NIL NIL NIL NIL 'SPYNODE))

```

```

(DECLARE%: DONTCOPY DOEVAL@COMPILE

```

```

(DECLARE%: EVAL@COMPILE

```

```

(RECORD SPYOBJDATA (CACHEDLABEL PERCENT LABEL))
)
)

```

```

(DEFINEQ

```

(SPY.FIND.TREE

```

[LAMBDA (FN) ; Edited 25-Sep-87 16:23 by jop
  (OR (find x in SPY.TREE suchthat (EQ (fetch (SPYRECORD NAME) of X)
FN))
  (CAR (push SPY.TREE (create SPYRECORD
NAME _ FN
COUNT _ 0))

```

(SPY.TOGGLE

```

[LAMBDA NIL (* Imm "24-Oct-84 22:49")
  (if (EQ \PERIODIC.INTERRUPT '\SPY.INTERRUPT)
then (SPY.END)
(RESETFORM (CURSOR WAITINGCURSOR)
(SPY.TREE 10))
else (SPY.START]))

```

(SPY.TREE

```

[LAMBDA (THRESHOLD INDIVIDUALP MERGETYPE DEPTHLIMIT) ; Edited 9-Dec-87 13:10 by sye
  (COND

```

```

((NULL SPY.TREE)
 "no spy samples have been gathered")
(T (PROG ((SPYDATA (create SPYDATA
    PACKAGE _ *PACKAGE*
    READTABLE _ *READTABLE*
    PRINT-CASE _ *PRINT-CASE*
    CUMULATIVE _ (NOT INDIVIDUALP)
    THRESHOLD _ (OR THRESHOLD SPY.SHOW.THRESHOLD)
    MERGETYPE _ (OR (if (EQ MERGETYPE 'DEFAULT)
        then T
        else MERGETYPE)
    (COND
        (INDIVIDUALP 'ALL)
        (T T)))
    DEPTH _ DEPTHLIMIT)))
 (SPY.MAKE.TREE (SPY.MERGE SPY.TREE SPYDATA)
    SPYDATA]))

```

(SPY.LEGEND

```

[LAMBDA NIL (* Imm "28-Sep-84 21:27")
 (SHOWGRAPH (LAYOUTGRAPH [for X in SPY.BORDERS collect (create GRAPHNODE
    NODEID _ X
    NODELABEL _ (CADR X)
    TONODES _ NIL
    NODEFONT _ SPY.FONT
    NODEBORDER _ (CDDR X)
    NODELABELSHADE _ (CADDR (CDDR X))
    (REVERSE SPY.BORDERS)
    NIL SPY.FONT NIL 10)
 "SPY border interpretation"
 'NIL
 'NIL])

```

(SPY.GRAPH.EDITOR

; Edited 29-Apr-94 14:03 by sybalsky

```

[LAMBDA (W COPY)
 (PROG* ((TREES (WINDOWPROP W 'TREES))
    NEW-TREES
    (TOPCOUNT (WINDOWPROP W 'TOPCOUNT))
    (WINDOW W)
    NODE LASTNODE ACTION (SPYDATA (WINDOWPROP W 'SPYDATA))
    PENDING
    [MULTIPLE (AND (= (LOGAND LASTKEYBOARD 32)
        32)
        (MOUSESTATE (OR LEFT MIDDLE)
        (*READTABLE* (fetch (SPYDATA READTABLE) of SPYDATA))
        (*PACKAGE* (fetch (SPYDATA PACKAGE) of SPYDATA))
        (*PRINT-CASE* (fetch (SPYDATA PRINT-CASE) of SPYDATA)))
        (TOTOPW W)
        (do (SETQ NODE (OR (NODELST/AS/MENU (fetch (GRAPH GRAPHNODES) of (WINDOWPROP W 'GRAPH))
            (CONS (LASTMOUSEX W)
            (LASTMOUSEY W)))
            COPY))
            (if (NEQ NODE LASTNODE)
                then [COND
                    (LASTNODE (if (EQ LASTNODE T)
                        then (INVERTW W)
                        else (FLIPNODE LASTNODE W))
                    [COND
                        (NODE (if (EQ NODE T)
                            then (INVERTW W)
                            else (FLIPNODE NODE W))
                        (SETQ LASTNODE NODE))
                    repeatwhile (MOUSESTATE (OR MIDDLE LEFT))]
                [COND
                    (COPY (RETURN (COND
                        ((EQ NODE T)
                        (INVERTW W)
                        (GRAPHERCOPYBUTTONEVENTFN W))
                        (T (FLIPNODE NODE W)
                        (COPYINSERT (fetch (SPYRECORD NAME) of (fetch (GRAPHNODE NODEID) of NODE]
                    (if NODE
                        then (LET [(NAME (fetch (SPYRECORD NAME) of (fetch (GRAPHNODE NODEID) of NODE]
                            (SELECTQ [SETQ ACTION (MENU (CONSTANT (create MENU
                                ITEMS _
                                ' (NewSubTree SubTree Delete Merge Edit
                                InspectCode]
                                (NIL (FLIPNODE NODE W) ; no tree action
                                )
                                (Edit (FLIPNODE NODE W)
                                    (ED NAME ' (FUNCTIONS FNS :DONTWAIT :DISPLAY)))
                                (InspectCode (FLIPNODE NODE W)
                                    (INSPECTCODE NAME))
                                (Delete ; remove this node. Leave still marked
                                    (push (fetch (SPYDATA DELETED) of SPYDATA)

```

```

        NAME)
        (SETQ PENDING "delete"))
    (Merge [if (fetch (GRAPHNODE FROMNODES) of NODE)
              then (push (fetch (SPYDATA MERGEINFO) of SPYDATA)
                          (LIST NAME (fetch (SPYRECORD NAME)
                                              of (CAR (fetch (GRAPHNODE FROMNODES) of NODE)]
                          (SETQ PENDING "merge"))
    (NewSubTree (FLIPNODE NODE W)
                (SPY.MAKE.TREE (SPY.MERGE (SPY.ORIGINAL (LIST (fetch (GRAPHNODE NODEID)
                                                                of NODE)))
                                SPYDATA)
                (create SPYDATA using SPYDATA PENDING _ NIL DELETED _ NIL)))
    ((SubTree)
     (SETQ NEW-TREES (SPY.MERGE (SPY.ORIGINAL (LIST (fetch (GRAPHNODE NODEID)
                                                                of NODE)))
                                SPYDATA)))
    (printout PROMPTWINDOW T "SORRY, FEATURE NOT IMPLEMENTED YET"))
  elseif (INSIDE? (WINDOWPROP W 'REGION)
           LASTMOUSEX LASTMOUSEY)
    then (SELECTQ [MENU (create MENU
                             ITEMS _ '(Legend Inspect SetThreshold , (COND
                                     ((fetch (SPYDATA CUMULATIVE)
                                      of SPYDATA)
                                      'Individual)
                                      (T 'Cumulative))
                                     ,@(SELECTQ (fetch (SPYDATA MERGETYPE) of SPYDATA)
                                                (ALL ' (MergeDefault MergeNone))
                                                (T ' (MergeNone MergeAll))
                                                (NIL NONE)
                                                ' (MergeDefault MergeAll))
                                     (SHOULDN'T]
                                     (NIL)
                                     (Legend (SPY.LEGEND))
                                     (Inspect (INSPECT/PLIST SPYDATA))
                                     (SetThreshold ; no need to remerge
                                     (replace (SPYDATA THRESHOLD) of SPYDATA with (RNUMBER "Threshold (percent)"
                                                NIL DEFAULTFONT
                                                DEFAULTFONT))
                                     (SETQ PENDING "threshold"))
                                     (MergeAll (replace (SPYDATA MERGETYPE) of SPYDATA with 'ALL)
                                     (SETQ PENDING "merge-type"))
                                     (MergeNone (replace (SPYDATA MERGETYPE) of SPYDATA with 'NONE)
                                     (SETQ PENDING "merge-type"))
                                     (MergeDefault (replace (SPYDATA MERGETYPE) of SPYDATA with T)
                                     (SETQ PENDING "merge-type"))
                                     ((Cumulative Individual)
                                      [replace (SPYDATA MERGETYPE) of SPYDATA with (COND
                                              ((change (fetch (SPYDATA CUMULATIVE)
                                                         of SPYDATA)
                                                         (NOT DATUM))
                                               T)
                                              (T 'ALL]
                                      (SETQ PENDING "merge-type"))
                                     (SHOULDN'T))
    DOIT
    (if (AND (NOT NEW-TREES)
             MULTIPLE)
        then ; multiple action while shift down
          (if PENDING
              then [if [NOT (STRPOS PENDING (WINDOWPROP W 'TITLE)
                                then (WINDOWPROP W 'TITLE (CONCAT PENDING "/" (WINDOWPROP W 'TITLE)
                                (replace (SPYDATA PENDING) of SPYDATA with T))
          elseif (OR NEW-TREES PENDING (fetch (SPYDATA PENDING) of SPYDATA))
            then (SPY.MAKE.TREE (OR NEW-TREES (SPY.MERGE (SPY.ORIGINAL TREES)
                                                         SPYDATA))
                                (create SPYDATA using SPYDATA PENDING _ NIL DELETED _ NIL)
                                WINDOW])
    (SPY.END
     [LAMBDA NIL
      (if (EQ \PERIODIC.INTERRUPT '\SPY.INTERRUPT)
          then (SETQ \PERIODIC.INTERRUPT)
              (SPY.DUMP.BUFFER)
              (if (OPENWP SPY.BUTTON)
                  then (BITBLT SPY.CLOSED NIL NIL SPY.BUTTON])
      ; Edited 9-Sep-87 17:51 by Masinter

```

(SPY.MAKEGRAPHNODES

[LAMBDA (TREE THRESHOLD SPYDATA)

; Edited 28-Apr-94 14:00 by sybalsky

;;; RETURNS NODE ID FOR TREE

```

(PROG ((LABEL (fetch (SPYRECORD NAME) of TREE))
      [COUNT (COND
                ((fetch (SPYDATA CUMULATIVE)

```

```

        SPYDATA)
      (fetch (SPYRECORD SUM) of TREE))
    (T (fetch (SPYRECORD COUNT) of TREE]
      (STATUS (fetch (SPYRECORD STATUS) of TREE))
      HEIGHT BORDER WIDTH NODEBITMAP TOOSMALL)
    [SETQ BORDER (CDDR (OR (ASSOC STATUS SPY.BORDERS)
      (SHOULDN'T))
      (push SPY.NODES (create GRAPHNODE
        NODEID _ TREE
        NODELABEL _ (SPYOBJ LABEL (QUOTIENT (TIMES COUNT 100)
          TOPCOUNT)
          STATUS)
        TONODES _ (for X in (fetch (SPYRECORD CALLEES) of TREE)
          when (OR (ZEROP THRESHOLD)
            (IGEQ (SPY.MAX (LIST X)
              (NOT (fetch (SPYDATA CUMULATIVE)
                SPYDATA)))
              THRESHOLD))
          bind VAL do (push VAL (SPY.MAKEGRAPHNODES X THRESHOLD SPYDATA))
          finally (RETURN VAL))
        NODEBORDER _ BORDER
        NODEFONT _ SPY.FONT)))
      TREE])

```

(SPY.MAX

```

[LAMBDA (TREES COUNTP MAX) ; Edited 28-Apr-94 13:59 by sybalsky
  [for X in TREES do (SETQ MAX (SPY.MAX (fetch (SPYRECORD CALLEES) of X)
    COUNTP
    (IMAX (OR MAX (IMAX))
      (if COUNTP
        then (fetch (SPYRECORD COUNT) of X)
        else (fetch (SPYRECORD SUM) of X]
    MAX])

```

(SPY.MERGE

```

[LAMBDA (TREES SPYDATA) ; Edited 28-Apr-94 14:00 by sybalsky
  [COND
    (SPY.HASH (CLRHASH SPY.HASH))
    (T (SETQ SPY.HASH (HASHARRAY 100))
      (if (fetch (SPYDATA DELETED) of SPYDATA)
        then (SETQ TREES (SPY.DELETE (fetch (SPYDATA DELETED) of SPYDATA)
          TREES)))
    (for X in TREES do (SPY.SUM X))
    (for NEWNODE in TREES bind VAL Z do [for OLDNODE in VAL when (EQ (fetch (SPYRECORD NAME) of OLDNODE)
      (fetch (SPYRECORD NAME) of NEWNODE))
      do (RETURN (SPY.MERGETREE NEWNODE OLDNODE SPYDATA NIL
        (fetch (SPYDATA DEPTH)
          SPYDATA)))
      finally (AND (SETQ Z (SPY.MERGE1 NEWNODE SPYDATA NIL NIL
        (fetch (SPYDATA DEPTH)
          SPYDATA)))
        (SETQ VAL (NCONC1 VAL Z]
    finally (CLRHASH SPY.HASH)
      (RETURN VAL])

```

(SPY.MERGE1

```

[LAMBDA (NEWORIGINAL SPYDATA PARENTS CALLER DEPTH) ; Edited 28-Apr-94 14:00 by sybalsky
  ; return the 'merged' tree for TREE, a copy of the original
  (PROG* ((NAME (fetch (SPYRECORD NAME) of NEWORIGINAL))
    [PARENT-NAME (AND PARENTS (fetch (SPYRECORD NAME) of (CAR PARENTS)
      (NEW-NAME NAME)
      MERGE-LIST MERGEP OLDCOPY NEWCOPY)
    [SELECTQ (fetch (SPYDATA MERGETYPE) of SPYDATA)
      ((NIL NONE))
      (PROGN (if (AND PARENTS (CL:SYMBOLP NAME)
        (CL:SYMBOLP PARENT-NAME)
        (GENSYM? NAME)
        (if (CL:KEYWORDP PARENT-NAME)
          then (STRPOS (LET* [(ORIG (fetch (SPYRECORD TREEFROM) of (CAR PARENTS)
            (fetch (SPYRECORD NAME) of (if (LISTP ORIG)
              then (CAR ORIG)
              else ORIG)))
            NAME 1 NIL T)
          elseif (EQ (CL:SYMBOL-PACKAGE NAME)
            (CL:SYMBOL-PACKAGE PARENT-NAME))
          then (STRPOS PARENT-NAME NAME 1 NIL T)))
        then (SETQ NEW-NAME PARENT-NAME))
      (SETQ MERGE-LIST (if (LITATOM NEW-NAME)
        then (SPY.MERGEINFO NEW-NAME SPYDATA PARENT-NAME)))
      (if MERGE-LIST
        then (if (EQ (CAR MERGE-LIST)
          ' :ANY)
          then (if PARENTS
            then (SETQ NEW-NAME PARENT-NAME))

```

(SPY.MERGETREE

```
; Edited 28-Apr-94 13:59 by sybalsky
; insert call tree from NEWORIGINAL into node starting with
; OLDCOPY
; this function is only called once we've decided to merge
; something after all
```

```

(PROG ((RECURSIVE (FMEMB OLDCOPY PARENTS)))
[COND
  ((NOT RECURSIVE)
    (add (fetch (SPYRECORD SUM) of OLDCOPY)
      (fetch (SPYRECORD SUM) of NEWORIGINAL)
    (add (fetch (SPYRECORD COUNT) of OLDCOPY)
      (fetch (SPYRECORD COUNT) of NEWORIGINAL))
  [if RECURSIVE
    then (SELECTQ (fetch (SPYRECORD STATUS) of OLDCOPY)
      ((NORMAL SELFRECURSIVE)
        (replace (SPYRECORD TREEFROM) of OLDCOPY with (LIST (fetch (SPYRECORD TREEFROM)
          of OLDCOPY)))
          ; must be a list
        (replace (SPYRECORD STATUS) of OLDCOPY with 'RECURSIVE))
      ((RECURSIVE GHOST))
      (MERGED (replace (SPYRECORD STATUS) of OLDCOPY with 'RECURSIVE))
      (SHOULDN'T))
    else
      (replace (SPYRECORD TREEFROM) of OLDCOPY with (CONS NEWORIGINAL
        (SELECTQ (fetch (SPYRECORD STATUS) of OLDCOPY)
          ((NORMAL SELFRECURSIVE)
            (replace (SPYRECORD STATUS)
              of OLDCOPY with 'MERGED)

```

```

                                (LIST (fetch (SPYRECORD TREEFROM)
                                                of OLDCOPY))
                                ((MERGED RECURSIVE ENDOFLINE GHOST)
                                 (fetch (SPYRECORD TREEFROM)
                                         of OLDCOPY))
                                (SHOULDN'T])
(SPY.MERGE.CALLEES NEWORIGINAL OLDCOPY SPYDATA PARENTS DEPTH)
(RETURN T])

```

(SPY.NEXT.TREE

```

[LAMBDA (TREE FN)
  (for X in (fetch (SPYRECORD CALLEES) of TREE) do (COND
    ((EQ (fetch (SPYRECORD NAME) of X)
         FN)
     (RETURN X)))
  finally (push (fetch (SPYRECORD CALLEES) of TREE)
    (SETQ X (create SPYRECORD
      NAME _ FN
      COUNT _ 0)))
  (RETURN X]))

```

; Edited 28-Apr-94 13:59 by sybalsky

(SPY.SUM

```

[LAMBDA (TREE)
  (replace (SPYRECORD SUM) of TREE with (PLUS (fetch (SPYRECORD COUNT) of TREE)
    (PROG1 (for X in (fetch (SPYRECORD CALLEES) of TREE)
      sum (SPY.SUM X))
      [SORT (fetch (SPYRECORD CALLEES) of TREE)
        (FUNCTION (LAMBDA (X Y)
          (IGREATERP (fetch (SPYRECORD SUM)
                           of X)
                     (fetch (SPYRECORD SUM) of Y)))])

```

; Edited 28-Apr-94 13:59 by sybalsky

(SPY.TITLE

```

[LAMBDA (X TOPCOUNT SPYDATA)
  (CONCAT "SPY " (fetch (SPYRECORD NAME) of X)
    ", " TOPCOUNT " samples"))

```

; Edited 25-Sep-87 16:30 by jop

(SPY.MAKE.TREE

```

[LAMBDA (TREES SPYDATA WINDOW)
  (PROG (GRAPH IDS W H THRSH TOPCOUNT (*PACKAGE* (fetch (SPYDATA PACKAGE) of SPYDATA))
    (*READTABLE* (fetch (SPYDATA READTABLE) of SPYDATA))
    (*PRINT-CASE* (fetch (SPYDATA PRINT-CASE) of SPYDATA)))
  (OR (FONTP SPY.FONT)
    (SETQ SPY.FONT (FONTCREATE SPY.FONT)))
  (SETQ TOPCOUNT (for X in TREES sum (fetch (SPYRECORD SUM) of X)))
  (SETQ THRSH (QUOTIENT (TIMES TOPCOUNT (fetch (SPYDATA THRESHOLD) of SPYDATA))
    100))
  (SETQ SPY.NODES)
  (SETQ SPY.TOPNODES (for X in TREES collect (SPY.MAKEGRAPHNODES X THRSH SPYDATA)))
  (SETQ TITLE (SPY.TITLE (CAR SPY.TOPNODES)
    TOPCOUNT SPYDATA))
  (SETQ SPY.WINDOW (SHOWGRAPH (LAYOUTGRAPH (REVERSE SPY.NODES)
    SPY.TOPNODES NIL SPY.FONT)
    (COND
      ((WINDOWP WINDOW)
       (WINDOWPROP WINDOW 'TITLE TITLE)
       WINDOW)
      (T TITLE))
    NIL NIL NIL NIL (FUNCTION SPY.COPYBUTTON)))
  (WINDOWPROP SPY.WINDOW 'ICON SPY.ICON)
  (WINDOWPROP SPY.WINDOW 'BUTONEVENTFN (FUNCTION SPY.GRAPH.EDITOR))
  (WINDOWPROP SPY.WINDOW 'RIGHTBUTTONFN (FUNCTION SPY.UPDATE.TITLE))
  (WINDOWPROP SPY.WINDOW 'SPYDATA SPYDATA)
  (WINDOWPROP SPY.WINDOW 'TREES TREES)
  (WINDOWPROP SPY.WINDOW 'SPYTITLE TITLE)
  (WINDOWPROP SPY.WINDOW 'TOPCOUNT TOPCOUNT)
  (MODERNWINDOW SPY.WINDOW]))

```

; Edited 4-Jan-2022 14:08 by rmk
; Edited 28-Apr-94 13:59 by sybalsky

(SPY.UPDATE.TITLE

```

[LAMBDA (W)
  (LET [(NODE (NODELST/AS/MENU (fetch (GRAPH GRAPHNODES) of (WINDOWPROP W 'GRAPH))
    (CONS (LASTMOUSEX W)
          (LASTMOUSEY W))
    (TOTOPW W)
    (COND
      ((NOT (INSIDE? (DSPCLIPPINGREGION NIL W)
        (LASTMOUSEX W)
        (LASTMOUSEY W)))
        ;; display the default window menu
        (DOWINDOWCOM W))

```

; Edited 29-Apr-94 14:03 by sybalsky


```

(T [if NODE
  then ;; change the window title to show the function name, and the individual and cumulative percentages
    (WINDOWPROP W 'TITLE (CONCAT (fetch (SPYRECORD NAME) of (fetch (GRAPHNODE NODEID)
                                     of NODE))
                                   " "
                                   (QUOTIENT (TIMES (fetch (SPYRECORD COUNT)
                                                             of (fetch (GRAPHNODE NODEID) of NODE))
                                               100)
                                   (WINDOWPROP W 'TOPCOUNT))
                                   "%% "
                                   (QUOTIENT (TIMES (fetch (SPYRECORD SUM)
                                                             of (fetch (GRAPHNODE NODEID) of NODE))
                                               100)
                                   (WINDOWPROP W 'TOPCOUNT))
                                   "%%")
    else ;; change the window title to show the top function name and total number of samples
      (WINDOWPROP W 'TITLE (WINDOWPROP W 'SPYTITLE]
      (UNTILMOUSESTATE UP])

```

(SPY.DELETE

```

[LAMBDA (NAMES TREES) ; Edited 28-Apr-94 13:59 by sybalsky
  (for X in TREES when (NOT (EQMEMB (fetch (SPYRECORD NAME) of X)
                                     NAMES))
    collect (create SPYRECORD using X CALLEES _ (SPY.DELETE NAMES (fetch (SPYRECORD CALLEES) of X))

```

(SPY.DRAWBOX

```

[LAMBDA (WIDTH HEIGHT BORDERWIDTH BITMAP TEXTURE) ; Edited 9-Sep-87 17:54 by Masinter
  (BITBLT NIL NIL NIL BITMAP 0 0 BORDERWIDTH HEIGHT 'TEXTURE 'PAINT TEXTURE)
  (BITBLT NIL NIL NIL BITMAP 0 0 WIDTH BORDERWIDTH 'TEXTURE 'PAINT TEXTURE)
  (BITBLT NIL NIL NIL BITMAP 0 (DIFFERENCE HEIGHT BORDERWIDTH)
    WIDTH BORDERWIDTH 'TEXTURE 'PAINT TEXTURE)
  (BITBLT NIL NIL NIL BITMAP (DIFFERENCE WIDTH BORDERWIDTH)
    0 BORDERWIDTH HEIGHT 'TEXTURE 'PAINT TEXTURE])

```

(SPY.BUFFER.ENTRY

```

[LAMBDA (N) ; Edited 28-Jul-2023 08:16 by Imm
  ; Edited 9-Sep-87 18:27 by Masinter
  (AND (ILEQ (SETQ N (LLSH N 1))
        SPY.BUFFER.SIZE)
    (\GETBASEPTR SPY.BUFFER N])

```

(SPY.BUTTON

```

[LAMBDA (POS) ; (* gbn " 2-Jun-85 13:12")
  (PROG [(REG (if POS
    then (CREATEREGION (fetch XCOORD of POS)
                       (fetch YCOORD of POS)
                       (WIDTHIFWINDOW (BITMAPWIDTH SPY.CLOSED))
                       (HEIGHTIFWINDOW (BITMAPHEIGHT SPY.CLOSED)))
    else (GETBOXREGION (WIDTHIFWINDOW (BITMAPWIDTH SPY.CLOSED))
                       (HEIGHTIFWINDOW (BITMAPHEIGHT SPY.CLOSED))
                       NIL NIL NIL "Specify region for window %"Spy Control%""])
    (BITBLT SPY.CLOSED NIL NIL (SETQ SPY.BUTTON (CREATEW REG NIL NIL T)))
    (WINDOWPROP SPY.BUTTON 'BUTTONEVENTFN (FUNCTION (LAMBDA (W)
      (AND (LASTMOUSESTATE UP)
        (SPY.TOGGLE]))

```

(SPY.END.ENTRY

```

[LAMBDA NIL ; (* ejs%: "27-APR-84 11:37")
  (SPY.ADD.ENTRY NIL])

```

(SPY.START

```

[LAMBDA (FILE) ; (* Imm "24-Oct-84 22:49")
  (if (OPENWP SPY.BUTTON) ; (* ejs%: "27-APR-84 11:37")
    then (BITBLT SPY.OPEN NIL NIL SPY.BUTTON))
  (SPY.INIT FILE)
  (SETQ \PERIODIC.INTERRUPT.FREQUENCY (QUOTIENT 60 SPY.FREQUENCY))
  (SETQ \PERIODIC.INTERRUPT '\SPY.INTERRUPT])

```

(SPY.INIT

```

[LAMBDA NIL ; Edited 9-Sep-87 23:47 by Masinter
  [OR SPY.BUFFER (SETQ SPY.BUFFER (\ALLOCBLOCK (CL:* SPY.BUFFER.SIZE 2]
  (SETQ SPY.BUFFER.THRESHOLD (QUOTIENT SPY.BUFFER.SIZE 2))
  (SETQ SPY.NEXT 0)
  (SETQ SPY.TREE)])

```

(\SPY.INTERRUPT

```

[LAMBDA NIL ; Edited 28-Jul-2023 08:59 by Imm

```

; Edited 9-Sep-87 18:32 by Masinter

```

(DECLARE (SPECVARS \BACKGROUND))
[PROG [(FRAME (fetch (FX CLINK)
                    (\MYALINK)
                    (IF \BACKGROUND
                        THEN (RETURN))
                    (SETQ \PERIODIC.INTERRUPT)
                    [COND
                        ((IGEQ (LLSH SPY.NEXT 1)
                             SPY.BUFFER.THRESHOLD)
                         (COND
                            (\INTERRUPTABLE (SPY.DUMP.BUFFER))
                            (T
                                (RETURN]
                        (SPY.START.ENTRY)
                    SAMPLELOOP
                    (SPY.ADD.ENTRY (fetch (FX FRAME)
                                         (FRAME))
                    (COND
                        ([NOT (fetch (FX INVALIDP)
                                     (SETQ FRAME (fetch (FX CLINK)
                                                         FRAME]
                        (GO SAMPLELOOP))
                        (T (SPY.END.ENTRY]
                    (SETQ \PERIODIC.INTERRUPT ' \SPY.INTERRUPT])

```

; turn off sampling while gathering sample

; this sample might overflow; just don't do it

(SPY.DUMP.BUFFER

; Edited 28-Apr-94 14:00 by sybalsky

```

[LAMBDA NIL
  (bind (I _ 0)
    NEXTI while (ILESSP I SPY.NEXT) do (bind [J _ (SETQ NEXTI (for K from I by 1 while (SPY.BUFFER.ENTRY
                                                                                                     K)
                                                                                                     finally (RETURN K]
    TREE
    (NAME _ "NO SUCH NAME")
    first [SETQ TREE (SPY.FIND.TREE (SPY.BUFFER.ENTRY (add J -1]
    while (IGREATERP J I)
    do [COND
        ([NEQ NAME (SETQ NAME (SPY.BUFFER.ENTRY (add J -1]
        (SETQ TREE (SPY.NEXT.TREE TREE NAME)))
        (T (replace (SPYRECORD STATUS) of TREE with 'SELFRECURSIVE]
    finally (add (fetch (SPYRECORD COUNT) of TREE)
                1))
    (SETQ I (ADD1 NEXTI)))
  (SETQ SPY.NEXT 0])

```

(SPY.START.ENTRY

(* ejs%: "27-APR-84 11:37")

(* do nothing at the start of the entry, do this at the end)

```

[LAMBDA NIL
  NIL])

```

(SPY.ADD.ENTRY

; Edited 28-Jul-2023 08:17 by Imm

; Edited 9-Sep-87 18:29 by Masinter

```

[LAMBDA (NAME)
  (\PUTBASEPTR SPY.BUFFER (LLSH SPY.NEXT 1)
   NAME)
  (COND
    ((IGEQ (LLSH (add SPY.NEXT 1)
                 1)
     SPY.BUFFER.SIZE)
     (SPY.OVERFLOW])

```

(SPY.ORIGINAL

; Edited 28-Apr-94 14:00 by sybalsky

```

[LAMBDA (TREES)
  (for X in TREES join (SELECTQ (fetch (SPYRECORD STATUS) of X)
    ((RECURSIVE MERGED ENDOFLINE)
     (APPEND (OR (LISTP (fetch (SPYRECORD TREEFROM) of X))
                 (SHOULDNT))))
    ((NORMAL GHOST RECURSIVEGHOST SELFRECURSIVE)
     (LIST (OR (fetch (SPYRECORD TREEFROM) of X)
                X)))
    (SHOULDNT])

```

(SPY.OVERFLOW

(* ejs%: "27-APR-84 11:37")

```

[LAMBDA NIL
  (add SPY.NEXT -1)
  (SETQ SPY.OVERFLOWED T])

```

(SPY.MERGE.CALLEES

; Edited 28-Apr-94 14:00 by sybalsky

; insert copies of the CALLEEs of NEWORIGINAL into
; OLDTREE's CALLEEs

```

[LAMBDA (NEWORIGINAL OLDCOPY SPYDATA PARENTS DEPTH)

```


```


(for ORIGCALLEE in (fetch (SPYRECORD CALLEES) of NEWORIGINAL)
  do (for COPYCALLEE in (fetch (SPYRECORD CALLEES) of OLDCOPY) when (EQ (fetch (SPYRECORD NAME) of COPYCALLEE)
                                                                    (fetch (SPYRECORD NAME) of ORIGCALLEE))
    do
      [RETURN (if (EQ (fetch (SPYRECORD STATUS) of COPYCALLEE)
                      'ENDOFLINE)
                  then (push (fetch (SPYRECORD TREEFROM) of COPYCALLEE)
                              ORIGCALLEE)
                  else (SPY.MERGETREE ORIGCALLEE (SELECTQ (fetch (SPYRECORD STATUS) of COPYCALLEE)
                                                            ((NORMAL RECURSIVE SELFRECURSIVE MERGED)
                                                             COPYCALLEE)
                                                            ((GHOST RECURSIVEGHOST)
                                                             (OR (GETHASH (fetch (SPYRECORD NAME)
                                                                    of ORIGCALLEE)
                                                                    SPY.HASH)
                                                             COPYCALLEE)))
                                                            (SHOULDNT)))
                  SPYDATA
                  (CONS OLDCOPY PARENTS)
                  (AND DEPTH (SUB1 DEPTH]
      ; found a 'callee' that can merge this one with
      ; no old node of same name found
    finally
      (if (AND DEPTH (ILEQ DEPTH 0))
          then (push (fetch (SPYRECORD CALLEES) of OLDCOPY)
                    (create SPYRECORD using ORIGCALLEE CALLEES _ NIL STATUS _ 'ENDOFLINE TREEFROM _
                                          (LIST NEWORIGINAL)))
          else (SPY.MERGE1 ORIGCALLEE SPYDATA (CONS OLDCOPY PARENTS)
                          OLDCOPY
                          (AND DEPTH (SUB1 DEPTH]))

(SPY.PRINT
  [LAMBDA (X FILE RDTBL)
    (LIST (CONCAT "spy:" (if (LISTP (fetch (SPYRECORD NAME) of X))
                             then "form"
                             else (fetch (SPYRECORD NAME) of X))
          ; Edited 25-Sep-87 16:32 by jop
    )

(RPAQ? \BACKGROUND )

(RPAQ? SPY.BUTTON )

(RPAQ SPY.OPEN SPY on

)

(RPAQ SPY.CLOSED SPY off

)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS SPY.OVERFLOWED \PERIODIC.INTERRUPT SPY.TREE SPY.BUFFER.SIZE SPY.NEXT SPY.BUFFER.THRESHOLD SPY.BUFFER
  SPY.FREQUENCY SPY.SHOW.THRESHOLD SPY.MAXLINES SPY.FONT)
)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(SPECVARS \BACKGROUND)
)

(DECLARE%: EVAL@COMPILE

(PUTPROPS WITH-SPY MACRO [(FORM)
                          (PROGN (SPY.START)
                                (PROG1 FORM (SPY.END)))]

(PUTPROPS WITH-SPY MACRO [(FORM)
                          (PROGN (SPY.START)
                                (PROG1 FORM (SPY.END)))]

)

(DECLARE%: DONTCOPY

(DECLARE%: EVAL@COMPILE

[DATATYPE SPYRECORD (NAME COUNT SUM CALLEES STATUS TREEFROM)
  STATUS _ 'NORMAL (INIT (DEFPRINT 'SPYRECORD 'SPY.PRINT]

```

```
(PROPRECORD SPYDATA (DELETED CUMULATIVE MERGETYPE THRESHOLD SPYMENU DEPTH NOGHOSTS PACKAGE READTABLE PRINT-CASE
                      MERGEINFO PENDING)
  CUMULATIVE _ T)
)

(/DECLAREDATATYPE 'SPYRECORD ' (POINTER POINTER POINTER POINTER POINTER POINTER)
  ;; ---field descriptor list elided by lister---
  '12)

(DEFPRINT 'SPYRECORD 'SPY.PRINT)
)

(/DECLAREDATATYPE 'SPYRECORD ' (POINTER POINTER POINTER POINTER POINTER POINTER)
  ;; ---field descriptor list elided by lister---
  '12)

(DEFPRINT 'SPYRECORD 'SPY.PRINT)

(DECLARE%: DOCOPY DOEVAL@COMPILE

(FILESLoad GRAPHER READNUMBER IMAGEOBJ)
)

(MOVD? 'NILL 'MODERNWINDOW)
```

FUNCTION INDEX

SPY.ADD.ENTRY	10	SPY.INIT	9	SPY.ORIGINAL	10	SPYOBJ.BUTTON	2
SPY.BUFFER.ENTRY	9	SPY.LEGEND	4	SPY.OVERFLOW	10	SPYOBJ.COPY	2
SPY.BUTTON	9	SPY.MAKE.TREE	8	SPY.PRINT	11	SPYOBJ.COPYIN	3
SPY.COPYBUTTON	3	SPY.MAKEGRAPHNODES	5	SPY.START	9	SPYOBJ.DISPLAY	2
SPY.DELETE	9	SPY.MAX	6	SPY.START.ENTRY	10	SPYOBJ.GET	2
SPY.DRAWBOX	9	SPY.MERGE	6	SPY.SUM	8	SPYOBJ.HEIGHT	3
SPY.DUMP.BUFFER	10	SPY.MERGE.CALLEES	10	SPY.TITLE	8	SPYOBJ.IMAGEBOX	2
SPY.END	5	SPY.MERGE1	6	SPY.TOGGLE	3	SPYOBJ.LABEL	3
SPY.END.ENTRY	9	SPY.MERGEINFO	3	SPY.TREE	3	SPYOBJ.SAVE	2
SPY.FIND.TREE	3	SPY.MERGETREE	7	SPY.UPDATE.TITLE	8	\SPY.INTERRUPT	9
SPY.GRAPH.EDITOR	4	SPY.NEXT.TREE	8	SPYOBJ	2		

VARIABLE INDEX

SPY.BORDERS	1	SPY.FRAGMENTS	1	SPY.MERGEINFO	1	SPY.SHOWCOUNTS	2
SPY.BUFFER	2	SPY.FREQUENCY	2	SPY.NEXT	2	SPY.SMALLGHOSTS	1
SPY.BUFFER.SIZE	1	SPY.GRAPH.MENU	1	SPY.NOMERGEFNS	1	SPY.TREE	2
SPY.BUTTON	11	SPY.HASH	1	SPY.OPEN	11	SPYOBJ.IMAGEFNS	3
SPY.CLOSED	11	SPY.ICON	1	SPY.SHOW.PERCENTAGES	1	SPYOBJCOMS	2
SPY.FONT	2	SPY.MAXLINES	2	SPY.SHOW.THRESHOLD	2	\BACKGROUND	11

RECORD INDEX

SPYDATA	12	SPYOBJDATA	3	SPYRECORD	11
---------------	----	------------------	---	-----------------	----

MACRO INDEX

WITH-SPY	11	WITH.SPY	11
----------------	----	----------------	----
