

File created: 17-Sep-87 15:17:45 {MCS:MCS:STANFORD}<LANE>STORAGE.;16

changes to: (VARS STORAGECOMS)
(FNS SHOWSTORAGE
REPAINT)

previous date: 9-Sep-87 10:06:41 {MCS:MCS:STANFORD}<LANE>STORAGE.;13

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

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(RPAQQ STORAGECOMS

```
(LOCALVARS . T)
(FNS SHOWSTORAGE)
(FNS SHOWSTORAGEBUTTONFN SHOWSTORAGE  
REPAINT SHOWSTORAGEUPDATE SHOWSTORAGE  
DISPLAY SHOWSTORAGEALLOCMDS)
(ADDVARS (SHOWSTORAGEIGNORE SMALLP  
LITATOM CHARACTER CL::STRUCTURE-OBJECT))
(INITVARS (SHOWSTORAGEMODES '(ITEM  
PAGE BOX))
(SHOWSTORAGEWINDOWSIZE 275)
(SHOWSTORAGEDEFAULTTHRESHOLD 1)
(SHOWSTORAGEFONT (bind FONT for  
ROTATION in '(90 0)
thereis
(for SIZE from 5 to 10 thereis (SETQ  
FONT (FONTCREATE 'HELVETICA SIZE  
'MRR ROTATION  
'DISPLAY T)))
finally
(RETURN FONT)))
SHOWSTORAGEPRIN2FLG)
(GLOBALVARS SHOWSTORAGEIGNORE  
SHOWSTORAGEMODES SHOWSTORAGE  
WINDOWSIZE SHOWSTORAGEDEFAULT  
THRESHOLD SHOWSTORAGEFONT  
SHOWSTORAGEPRIN2FLG)
(DECLARE%: DONTCOPY (CONSTANTS  
(SHOWSTORAGE  
SHADE 42405]))
```

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(LOCALVARS . T)
)

(DEFINEQ

(SHOWSTORAGE

```
[LAMBDA (PAGETHRESHOLD MODE ROTATION) ; Edited 9-Sep-87 10:06 by cdl
(if (NOT (MEMB MODE SHOWSTORAGE  
MODES))
then (SETQ MODE (CAR SHOWSTORAGE  
MODES)))
(if (NOT (NUMBERP PAGETHRESHOLD))
then (SETQ PAGETHRESHOLD  
SHOWSTORAGEDEFAULTTHRESHOLD))
(LET (WINDOW SIZE (TYPES (SHOWSTORAGE  
ALLOCMDS PAGETHRESHOLD))
(FONT (if ROTATION
then (FONTCOPY SHOWSTORAGEFONT  
'ROTATION ROTATION)
else SHOWSTORAGEFONT)))
[SETQ SIZE (TIMES (LENGTH TYPES)
(FONTPROP FONT 'HEIGHT)
(FONTPROP FONT 'ROTATION)
(90 (GETBOXREGION (WIDTHIFWINDOW  
SIZE)
(HEIGHTIFWINDOW SHOWSTORAGE  
WINDOWSIZE T)))
(GETBOXREGION (WIDTHIFWINDOW  
SHOWSTORAGEWINDOWSIZE)
(HEIGHTIFWINDOW SIZE T)))
(CONCAT "Datatype Storage by " MODE " count, threshold = " PAGETHRESHOLD))
(DSPFONT FONT WINDOW)
(WINDOWPROP WINDOW 'BUTTONEVENTFN  
(FUNCTION SHOWSTORAGEBUTTONFN))
(WINDOWPROP WINDOW 'RESHAPEFN  
(FUNCTION SHOWSTORAGE  
REPAINT))
(WINDOWPROP WINDOW 'REPAINTFN  
(FUNCTION SHOWSTORAGE  
REPAINT))
(WINDOWPROP WINDOW 'EXPANDFN  
(FUNCTION SHOWSTORAGE  
UPDATE))
(WINDOWPROP WINDOW 'MODE MODE)
(WINDOWPROP WINDOW 'THRESHOLD  
PAGETHRESHOLD)
(WINDOWPROP WINDOW 'ALLOCMDS  
TYPES)
(REDISPLAYW WINDOW])
)
```

(DEFINEQ

(SHOWSTORAGEBUTTONFN

```
[LAMBDA (WINDOW) ; Edited 9-Sep-87 08:10 by cdl
(if (MOUSESTATE LEFT)
then (SHOWSTORAGEUPDATE WINDOW)
elseif (MOUSESTATE MIDDLE)
then [LET [(MODE (OR (CADR (MEMB  
(WINDOWPROP WINDOW 'MODE)
SHOWSTORAGE  
MODES))
(CAR SHOWSTORAGE  
MODES)
(WINDOWPROP WINDOW 'MODE MODE)
(WINDOWPROP WINDOW 'TITLE (CONCAT  
"Datatype Storage by " MODE " count, threshold = "  
(WINDOWPROP WINDOW 'THRESHOLD]
```

```

(DSPFILL (SELECTQ (FONTPROP (DSPFONT NIL WINDOW)
                          'ROTATION)
              (90 (create REGION
                    HEIGHT _ (WINDOWPROP WINDOW 'DIVISION) using (DSPCLIPPINGREGION NIL WINDOW))
                  (create REGION
                    WIDTH _ (WINDOWPROP WINDOW 'DIVISION) using (DSPCLIPPINGREGION NIL WINDOW)))
          WHITESHADE
          'REPLACE WINDOW)
(SHOWSTORAGEUPDATE WINDOW))
(until (MOUSESTATE UP) do (BLOCK])

```

(SHOWSTORAGEEREPAIN

; Edited 17-Sep-87 15:07 by cdl

```

[LAMBDA (WINDOW)
  (PROG ((FONT (DSPFONT NIL WINDOW))
        (REGION (DSPCLIPPINGREGION NIL WINDOW))
        DATATYPES SIZE DIVISION FONTHEIGHT ROTATION)
    [if [NULL (SETQ DATATYPES (WINDOWPROP WINDOW 'ALLOCMDS)]
      then (WINDOWPROP WINDOW 'ALLOCMDS (SETQ DATATYPES (SHOWSTORAGEALLOCMDS (WINDOWPROP WINDOW
                                                                              'THRESHOLD)
                                                                              (WINDOWPROP WINDOW 'DATATYPES (SETQ DATATYPES (in DATATYPES collect CAR))))
        (if (NEQ [SETQ SIZE (TIMES (LENGTH DATATYPES)
                                  (SETQ FONTHEIGHT (FONTPROP FONT 'HEIGHT)
                                  (with REGION REGION (SELECTQ (SETQ ROTATION (FONTPROP FONT 'ROTATION)
                                                                (90 WIDTH)
                                                                HEIGHT)))
          then [SHAPEW WINDOW (SELECTQ ROTATION
                                      (90 (create REGION
                                            WIDTH _ (WIDTHIFWINDOW SIZE) using (WINDOWPROP WINDOW
                                                                              'REGION)))
              (create REGION
                HEIGHT _ (HEIGHTIFWINDOW SIZE T) using (WINDOWPROP WINDOW
                                                          'REGION)
              (RETURN))
        [WINDOWPROP WINDOW 'DIVISION (SETQ DIVISION (DIFFERENCE (with REGION REGION (SELECTQ ROTATION
                                                                              (90 TOP)
                                                                              RIGHT))
                                                                (STRINGWIDTH (for DATATYPE in DATATYPES
                                                                    largest (NCHARS DATATYPE
                                                                    SHOWSTORAGEPRIN2FLG))
                                                                FONT SHOWSTORAGEPRIN2FLG)
          (bind (WIDTH _ (ADD1 DIVISION))
              [HEIGHT _ (SELECTQ ROTATION
                              (90 (FONTPROP FONT 'ASCENT))
                              (FONTPROP FONT 'DESCENT)]
        for DATATYPE in DATATYPES do (SELECTQ ROTATION
                                          (90 (MOVETO HEIGHT WIDTH WINDOW)
                                          (MOVETO WIDTH HEIGHT WINDOW))
          (if SHOWSTORAGEPRIN2FLG
            then (printout WINDOW .P2 DATATYPE)
            else (printout WINDOW DATATYPE))
          (add HEIGHT FONTHEIGHT))
        (SHOWSTORAGEUPDATE WINDOW))

```

(SHOWSTORAGEUPDATE

; Edited 9-Sep-87 07:48 by cdl

```

[LAMBDA (WINDOW)
  (DECLARE (SPECVARS WINDOW)
          (GLOBALVARS WAITINGCURSOR))
  (RESETFORM (CURSOR WAITINGCURSOR)
    (LET ((FONT (DSPFONT NIL WINDOW))
          (DIVISION (WINDOWPROP WINDOW 'DIVISION))
          (MODE (WINDOWPROP WINDOW 'MODE))
          (DATATYPES (WINDOWPROP WINDOW 'DATATYPES))
          (ALLOCMDSLST (WINDOWPROP WINDOW 'ALLOCMDS NIL))
          (FREE (CREATECELL \FIXP))
          ALLOCMDS DATATYPE REGION ITEMSPERMDS TYPENUMBER ROTATION FONTHEIGHT)
    (DECLARE (SPECVARS ALLOCMDS))
    (SETQ FONTHEIGHT (FONTPROP FONT 'HEIGHT))
    (SETQ REGION (SELECTQ (SETQ ROTATION (FONTPROP FONT 'ROTATION))
                          (90 (create REGION
                                    WIDTH _ FONTHEIGHT
                                    LEFT _ 1))
                            (create REGION
                              HEIGHT _ FONTHEIGHT
                              BOTTOM _ 0)))
    (for DATATYPE in DATATYPES
      do (SETQ TYPENUMBER (\TYPENUMBERFROMNAME DATATYPE))
        (SELECTQ MODE
          ((PAGE ITEM)
           (\StatsZero FREE)
           (if (NULL ALLOCMDSLST)
             then (SETQ ALLOCMDSLST (SHOWSTORAGEALLOCMDS (WINDOWPROP WINDOW
                                                            'THRESHOLD)
                                                            DATATYPE)))
             (SETQ ALLOCMDS (CADR (pop ALLOCMDSLST)))

```

```

[if (EQ 'LISTP (\TYPENAMEFROMNUMBER TYPENUMBER))
  then [SETQ ITEMSPERMDS (CONSTANT (FIX (FQUOTIENT \MDSIncrement 2.2]
    (for (LSTPAG _ (create POINTER
      PAGE# _ (fetch (DTD DTDNEXTPAGE) of \LISTPDTD)))
      by (create POINTER
        PAGE# _ (fetch (CONSPAGE NEXTPAGE) of LSTPAG))
    while LSTPAG do (\BOXIPLUS FREE (fetch (CONSPAGE CNT) of LSTPAG)))
  else (with DTD (\GETDTD TYPENUMBER)
    (SETQ ITEMSPERMDS (QUOTIENT \MDSIncrement DTDSize))
    (for (PTR _ DTDFREE) by (\GETBASEPTR PTR 0) while PTR
      do (\BOXIPLUS FREE 1])
    NIL)
(SELECTQ MODE
  (PAGE (SHOWSTORAGEDISPLAY (TIMES ALLOCMDs (QUOTIENT \MDSIncrement WORDSPERPAGE))
    (TIMES (QUOTIENT FREE ITEMSPERMDS)
      (QUOTIENT \MDSIncrement WORDSPERPAGE))
    WINDOW REGION))
  (ITEM (SHOWSTORAGEDISPLAY (TIMES ALLOCMDs ITEMSPERMDS)
    FREE WINDOW REGION))
  (BOX (SHOWSTORAGEDISPLAY (BOXCOUNT TYPENUMBER)
    NIL WINDOW REGION))
  (SHOULDNT))
(with REGION REGION (SELECTQ ROTATION
  (90 (add LEFT FONTHEIGHT))
  (add BOTTOM FONTHEIGHT])

```

(SHOWSTORAGEDISPLAY

(* cdl "28-Jan-87 18:22")

```

[LAMBDA (TOTAL FREE WINDOW REGION)
  (PROG ((FONT (DSPFONT NIL WINDOW))
    (DIVISION (WINDOWPROP WINDOW 'DIVISION))
    ROTATION INUSE OFFSET STRINGWIDTH)
  (with REGION REGION [SELECTQ (SETQ ROTATION (FONTPROP FONT 'ROTATION))
    (90 (SETQ HEIGHT TOTAL)
      (SETQ BOTTOM (DIFFERENCE DIVISION TOTAL))
      [SETQ OFFSET (PLUS LEFT (SUB1 (FONTPROP FONT 'ASCENT]))
    (PROGN (SETQ WIDTH TOTAL)
      (SETQ LEFT (DIFFERENCE DIVISION TOTAL))
      (SETQ OFFSET (PLUS BOTTOM (FONTPROP FONT 'DESCENT]))
    (DSPFILL REGION BLACKSHADE NIL WINDOW)
    (if (NULL FREE)
      then (if (GREATERP TOTAL (STRINGWIDTH TOTAL FONT))
        then (SELECTQ ROTATION
          (90 (MOVETO OFFSET (ADD1 (MAX BOTTOM 0))
            WINDOW))
          (MOVETO (ADD1 (MAX LEFT 0))
            OFFSET WINDOW))
          (printout WINDOW TOTAL))
        (RETURN))
      (if (GREATERP (SETQ INUSE (DIFFERENCE TOTAL FREE))
        (STRINGWIDTH INUSE FONT))
        then (SELECTQ ROTATION
          (90 (MOVETO OFFSET (ADD1 (MAX (PLUS BOTTOM FREE)
            0))
            WINDOW))
          (MOVETO (ADD1 (MAX (PLUS LEFT FREE)
            0))
            OFFSET WINDOW))
          (DSPOPERATION 'INVERT WINDOW)
          (PRIN1 INUSE WINDOW)
          (DSPOPERATION 'REPLACE WINDOW))
        (SELECTQ ROTATION
          (90 (SETQ HEIGHT FREE))
          (SETQ WIDTH FREE))
        (DSPFILL REGION SHOWSTORAGE SHADE NIL WINDOW)
        (if (AND (GREATERP FREE (SETQ STRINGWIDTH (STRINGWIDTH FREE FONT)))
          (GREATERP (DIFFERENCE DIVISION INUSE)
            STRINGWIDTH))
          then (SELECTQ ROTATION
            (90 (MOVETO OFFSET (ADD1 (MAX BOTTOM 0))
              WINDOW))
            (MOVETO (ADD1 (MAX LEFT 0))
              OFFSET WINDOW))
            (PRIN1 FREE WINDOW])

```

(SHOWSTORAGEALLOCMDS

; Edited 9-Sep-87 10:05 by cdl

```

[LAMBDA (THRESHOLD TYPES)
  (DECLARE (SPECVARS THRESHOLD)
    (GLOBALVARS WAITINGCURSOR))
  (RESETFORM (CURSOR WAITINGCURSOR)
    (bind ALLOCMDS declare%: (SPECVARS ALLOCMDS) for DATATYPE inside (OR TYPES (LDIFFERENCE (DATATYPES)
      SHOWSTORAGEIGNORE))
    everytime (SETQ ALLOCMDS 0)
      [\MAPMDS (\TYPENUMBERFROMNAME DATATYPE)
        (FUNCTION (LAMBDA NIL
          (ADDIVAR ALLOCMDS]

```

```
      when (GEQ (TIMES ALLOCMDS (QUOTIENT \MDSIncrement WORDSPERPAGE))
              THRESHOLD)
      collect (LIST DATATYPE ALLOCMDS])
)
(ADDTOVAR SHOWSTORAGEIGNORE SMALLP LITATOM CHARACTER CL::STRUCTURE-OBJECT)
(RPAQ? SHOWSTORAGEMODES '(ITEM PAGE BOX))
(RPAQ? SHOWSTORAGEWINDOWSIZE 275)
(RPAQ? SHOWSTORAGEDEFAULTTHRESHOLD 1)
(RPAQ? SHOWSTORAGEFONT
  (bind FONT for ROTATION in '(90 0)
    thereis
    (for SIZE from 5 to 10 thereis (SETQ FONT (FONTCREATE 'HELVETICA SIZE 'MRR ROTATION 'DISPLAY T)))
    finally
    (RETURN FONT)))
(RPAQ? SHOWSTORAGEPRIN2FLG NIL)
(DECLARE%: DOEVAL@COMPILE DONTCOPY
(GLOBALVARS SHOWSTORAGEIGNORE SHOWSTORAGEMODES SHOWSTORAGEWINDOWSIZE SHOWSTORAGEDEFAULTTHRESHOLD SHOWSTORAGEFONT
  SHOWSTORAGEPRIN2FLG)
)
(DECLARE%: DONTCOPY
(DECLARE%: EVAL@COMPILE
(RPAQQ SHOWSTORAGE SHADE 42405)
(CONSTANTS (SHOWSTORAGE SHADE 42405))
)
)
(PUTPROPS STORAGE COPYRIGHT ("Stanford University" 1984 1985 1986 1987))
```

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