

File created: 2-Sep-88 10:53:28 {DSK}<LISPPFILES>READNUM.;1

previous date: 6-Apr-87 09:27:44 {DSK}<LISPPFILES>READNUM.;1

Read Table: OLD-INTERLISP-FILE

Package: INTERLISP

Format: XCCS

(RPAQQ READNUMCOMS

```
((FNS READNUM READNUM.CLOSEFN READNUM.CREATE.DISPLAY READNUM.CREATE.MENU READNUM.CREATE.REGION
READNUM.DISPLAY.TOTAL READNUM.FLASHAREA READNUM.LOOP READNUM.OUTLINE.REGION READNUM.PROCESS
READNUM.REGION.ONSCREEN READNUM.SET.WINDOWPROPS READNUM.UPDATE READNUM.WHENHELDFN READTIME
READTIME.CREATE.MENU READTIME.MAKE.OUTPUT READTIME.PARSE.TIME READTIME.PROCESS READTIME.UPDATE
READTIME.WHENHELDFN READTIMEW))
(INITVARS (READNUM.DEFAULT.MAXDIGITS 9))
(GLOBALVARS READNUM.DEFAULT.MAXDIGITS))
```

(DEFINEQ

(READNUM

```
[LAMBDA (MESSAGE POSITION FONT MINIMUM MAXIMUM FLOATING POSITIVE NOABORT MAXDIGITS)
(* Gaska "26-Mar-87 15:39")
```

(* * Create a keypad for entry of numbers)

```
(PROG* ([FONT (FONTCREATE (OR FONT (QUOTE (GACHA 12 BRR]
(FLOATING (OR FLOATING (FLOATP MINIMUM)
(FLOATP MAXIMUM)))
[POSITIVE (OR POSITIVE (AND MINIMUM (GEQ MINIMUM 0]
(MAXDIGITS (LET [(MAXDIG (MAX (if (FIXP MINIMUM)
then (NCHARS MINIMUM)
else READNUM.DEFAULT.MAXDIGITS)
(if (FIXP MAXIMUM)
then (NCHARS MAXIMUM)
else READNUM.DEFAULT.MAXDIGITS]
(if (AND (NOT (AND MINIMUM MAXIMUM))
MAXDIGITS
(IGREATERP MAXDIGITS MAXDIG)
then MAXDIGITS
else MAXDIG)))
(MENU (READNUM.CREATE.MENU FONT FLOATING POSITIVE NOABORT))
(DISPLAYWINDOW (READNUM.CREATE.DISPLAY MESSAGE POSITION FONT MINIMUM MAXIMUM POSITIVE FLOATING
MAXDIGITS MENU)))
(ADDMENU MENU DISPLAYWINDOW (CREATEPOSITION (IQUOTIENT (IDIFFERENCE (WINDOWPROP DISPLAYWINDOW
(QUOTE WIDTH))
(fetch IMAGEWIDTH of MENU))
2)
0))
(WINDOWPROP DISPLAYWINDOW (QUOTE REPAINTFN)
NIL)
(if NOABORT
then (WINDOWADDDPROP DISPLAYWINDOW (QUOTE CLOSEFN)
(QUOTE DON'T)))
(RETURN (READNUM.LOOP DISPLAYWINDOW))
```

(READNUM.CLOSEFN

```
[LAMBDA (WINDOW) (* Gaska "4-Mar-87 14:22")
```

(* * Close function for READNUM)

```
(WINDOWPROP WINDOW (QUOTE TOTAL)
NIL)
(WINDOWPROP WINDOW (QUOTE FINISHED)
T))
```

(READNUM.CREATE.DISPLAY

```
[LAMBDA (MESSAGE POSITION FONT MINIMUM MAXIMUM POSITIVE FLOATING MAXDIGITS MENU)
(* Gaska "2-Sep-88 10:47")
```

(* * Create the display window for READNUM)

```
(PROG* ([MESSAGE (if MESSAGE
then (OR (LISTP MESSAGE)
(LIST MESSAGE]
(CHARHEIGHT (FONTHEIGHT FONT))
(DISPLAYCHARS (IPLUS MAXDIGITS (if POSITIVE
then 0
else 1)
(if FLOATING
then 1
else 0)))
(DISPLAYWIDTH (ITIMES (ADD1 DISPLAYCHARS)
(STRINGWIDTH "0" FONT)))
(MAXMESSAGEWIDTH (STRINGWIDTH (for MSG in MESSAGE largest (STRINGWIDTH MSG FONT))
```

```

        FONT))
(WIDTH (MAX (fetch IMAGEWIDTH of MENU)
(IPLUS MAXMESSAGEWIDTH 10)
(if MINIMUM
  then (IPLUS (STRINGWIDTH (CONCAT "Min is " (MKSTRING MINIMUM))
    FONT)
    10)
  else 0)
(if MAXIMUM
  then (IPLUS (STRINGWIDTH (CONCAT "Max is " (MKSTRING MAXIMUM))
    FONT)
    10)
  else 0)
(IPLUS DISPLAYWIDTH 10)))
[HEIGHT (IPLUS (fetch IMAGEHEIGHT of MENU)
(TIMES (IPLUS CHARHEIGHT 2)
(PLUS (LENGTH MESSAGE)
(for X in (LIST MINIMUM MAXIMUM) count X)
1.5]
(POSITION (READNUM.REGION.ONSCREEN POSITION WIDTH HEIGHT))
(TITLEREGION (READNUM.CREATE.REGION WIDTH HEIGHT CHARHEIGHT (LENGTH MESSAGE)))
[MINIMUMREGION (if MINIMUM
  then (READNUM.CREATE.REGION WIDTH HEIGHT CHARHEIGHT (ADD1 (LENGTH MESSAGE)
[MAXIMUMREGION (if MAXIMUM
  then (READNUM.CREATE.REGION WIDTH HEIGHT CHARHEIGHT
(IPLUS 1 (LENGTH MESSAGE)
(if MINIMUM
  then 1
  else 0]
(DISPLAYREGION (CREATEREGION (IQUOTIENT (IDIFFERENCE WIDTH DISPLAYWIDTH)
2)
(IPLUS (fetch IMAGEHEIGHT of MENU)
5)
DISPLAYWIDTH
(IPLUS CHARHEIGHT 2)))
(WINDOW (CREATEW (CREATEREGION (CAR POSITION)
(CDR POSITION)
(WIDTHIFWINDOW WIDTH)
(HEIGHTIFWINDOW HEIGHT))
NIL 4)))
(DSPFONT FONT WINDOW)
[if MESSAGE
  then (for MSG in (REVERSE MESSAGE) do (CENTERPRINTINREGION MSG TITLEREGION (WINDOWPROP WINDOW
(QUOTE DSP)))
(replace BOTTOM of TITLEREGION
with (IPLUS (fetch BOTTOM of TITLEREGION)
CHARHEIGHT 2]
[if MINIMUM
  then (CENTERPRINTINREGION (CONCAT "Min is " (MKSTRING MINIMUM))
MINIMUMREGION
(WINDOWPROP WINDOW (QUOTE DSP]
[if MAXIMUM
  then (CENTERPRINTINREGION (CONCAT "Max is " (MKSTRING MAXIMUM))
MAXIMUMREGION
(WINDOWPROP WINDOW (QUOTE DSP]
(READNUM.OUTLINE.REGION DISPLAYREGION WINDOW 2)
(READNUM.SET.WINDOWPROPS WINDOW MINIMUM MAXIMUM DISPLAYCHARS DISPLAYREGION MINIMUMREGION
MAXIMUMREGION)
(READNUM.DISPLAY.TOTAL WINDOW)
(RETURN WINDOW])

```

(READNUM.CREATE.MENU

[LAMBDA (FONT FLOATING POSITIVE NOABORT)

(* Gaska " 5-Mar-87 08:10")

(* * Create the READNUM keyboard)

```

(create MENU
ITEMS _ (APPEND (if NOABORT
  then (QUOTE (% ))
  else (QUOTE (Abt)))
(QUOTE (Clr BS OK 1 2 3 4 5 6 7 8))
(if FLOATING
  then (QUOTE (%.))
  else (QUOTE (% )))
(if POSITIVE
  then (QUOTE (% ))
  else (QUOTE (-)))
(QUOTE (9 0)))
MENUFONT _ FONT
MENCOLUMNS _ 4
CENTERFLG _ T
MENUOUTLINESIZE _ 2
WHENSELECTEDFN _ (FUNCTION READNUM.PROCESS)
WHENHELDFN _ (FUNCTION READNUM.WHENHELDFN])

```

(READNUM.CREATE.REGION

```
[LAMBDA (WINDOWWIDTH WINDOWHEIGHT CHARHEIGHT LINESFROMTOP) (* Gaska " 2-Sep-88 10:15")

  (** Create a region for a label)

  (CREATEREGION 0 (IDIFFERENCE WINDOWHEIGHT (ITIMES (IPLUS CHARHEIGHT 2)
                                                    LINESFROMTOP))
    WINDOWWIDTH CHARHEIGHT])
```

(READNUM.DISPLAY.TOTAL

```
[LAMBDA (WINDOW) (* Gaska " 4-Mar-87 13:51")

  (** Display the current value in the READNUM display region)

  (DSPFILL (WINDOWPROP WINDOW (QUOTE DISPLAYREGION))
    WHITESHAE
    (QUOTE REPLACE)
    (WINDOWPROP WINDOW (QUOTE DSP)))
  (CENTERPRINTINREGION (WINDOWPROP WINDOW (QUOTE TOTAL))
    (WINDOWPROP WINDOW (QUOTE DISPLAYREGION))
    (WINDOWPROP WINDOW (QUOTE DSP]))
```

(READNUM.FLASHAREA

```
[LAMBDA (REGION WINDOW) (* Gaska " 4-Mar-87 13:49")

  (** Flash an area within a window)

  (BITBLT NIL NIL NIL WINDOW (fetch LEFT of REGION)
    (fetch BOTTOM of REGION)
    (fetch WIDTH of REGION)
    (fetch HEIGHT of REGION)
    (QUOTE TEXTURE)
    (QUOTE INVERT)
    BLACKSHADE)
  (DISMISS 100)
  (BITBLT NIL NIL NIL WINDOW (fetch LEFT of REGION)
    (fetch BOTTOM of REGION)
    (fetch WIDTH of REGION)
    (fetch HEIGHT of REGION)
    (QUOTE TEXTURE)
    (QUOTE INVERT)
    BLACKSHADE])
```

(READNUM.LOOP

```
[LAMBDA (WINDOW) (* Gaska " 7-Mar-87 13:46")

  (** Loop until READNUM is finished)

  (SPAWN.MOUSE)
  (RESETLST
    (RESETSAVE NIL (LIST (QUOTE CLOSEW)
                        WINDOW))
  [until (WINDOWPROP WINDOW (QUOTE FINISHED)) do (TOTOPW WINDOW)
    (DISMISS 100)
    finally (WINDOWDELPROP WINDOW (QUOTE CLOSEFN)
      (QUOTE READNUM.CLOSEFN))
      (WINDOWDELPROP WINDOW (QUOTE CLOSEFN)
        (QUOTE DON'T))
      (RETURN (if (WINDOWPROP WINDOW (QUOTE TOTAL))
        then (if (WINDOWPROP WINDOW (QUOTE TIMEENTRY))
          then (READTIME.MAKE.OUTPUT WINDOW)
          else (MKATOM (WINDOWPROP WINDOW (QUOTE TOTAL))))))
```

(READNUM.OUTLINE.REGION

```
[LAMBDA (REGION WINDOW SIZE) (* Gaska " 2-Sep-88 10:02")

  (** Put a border of size SIZE around the REGION in WINDOW)

  (LET ((SIZE (OR (FIXP SIZE)
    2)))
    (BITBLT NIL NIL NIL WINDOW (IDIFFERENCE (fetch LEFT of REGION)
      SIZE)
      (IDIFFERENCE (fetch BOTTOM of REGION)
        SIZE)
      (IPLUS (fetch WIDTH of REGION)
        SIZE SIZE)
      (IPLUS (fetch HEIGHT of REGION)
        SIZE SIZE)
      (QUOTE TEXTURE)
      (QUOTE REPLACE)
      BLACKSHADE)
    (BITBLT NIL NIL NIL WINDOW (fetch LEFT of REGION)
      (fetch BOTTOM of REGION)
```

(fetch WIDTH of REGION)
(fetch HEIGHT of REGION)
(QUOTE TEXTURE)
(QUOTE REPLACE)
(DSPTEXTURE NIL WINDOW])

(READNUM.PROCESS

[LAMBDA (ITEM MENU BUTTON)

(* Gaska " 9-Mar-87 16:15")

(* * Process READNUM keyboard entries)

(PROG* [(WINDOW (WFROMMENU MENU))
(TOTAL (WINDOWPROP WINDOW (QUOTE TOTAL)
(SELECTQ ITEM
(Abt (WINDOWPROP WINDOW (QUOTE TOTAL)
NIL)
(WINDOWPROP WINDOW (QUOTE FINISHED)
T))
(Clr (READNUM.UPDATE WINDOW "0"))
(OK (if [AND (WINDOWPROP WINDOW (QUOTE MINIMUM)
(LESSP (MKATOM TOTAL)
(WINDOWPROP WINDOW (QUOTE MINIMUM)
WINDOW)
then (READNUM.FLASHAREA (WINDOWPROP WINDOW (QUOTE MINIMUMREGION)
WINDOW)
else (WINDOWPROP WINDOW (QUOTE FINISHED)
T)))]
(BS (READNUM.UPDATE WINDOW (LET ((NEWSTRING (OR (SUBSTRING TOTAL 1 (SUB1 (NCHARS TOTAL))
"0"))))
(if (STREQUAL NEWSTRING "-")
then "0"
else NEWSTRING))))))
(% . (if (NULL (STRPOS "." TOTAL))
then (READNUM.UPDATE WINDOW (CONCAT TOTAL "."))))
(% NIL)
(- (READNUM.UPDATE WINDOW (if (STREQUAL (SUBSTRING TOTAL 1 1)
"-")
then (SUBSTRING TOTAL 2 (NCHARS TOTAL))
else (CONCAT "-" TOTAL))))
(READNUM.UPDATE WINDOW (CONCAT (if (STREQUAL TOTAL "0")
then ""
else TOTAL)
ITEM]))

(READNUM.REGION.ONSCREEN

[LAMBDA (POSITION WIDTH HEIGHT)

(* Gaska " 6-Mar-87 09:35")

(* * Determine if a region is entirely on the screen, if not, adjust the position)

(LET [(POSITION (OR (POSITIONP POSITION)
(LET NIL (GETMOUSESTATE)
(CREATEPOSITION LASTMOUSEX LASTMOUSEY)
(CREATEPOSITION [if (ILEQ (IPLUS (CAR POSITION)
WIDTH)
SCREENWIDTH)
then (CAR POSITION)
else (IMAX 0 (IDIFFERENCE SCREENWIDTH (IPLUS WIDTH 10)]
(if (ILEQ (IPLUS (CDR POSITION)
HEIGHT)
SCREENHEIGHT)
then (CDR POSITION)
else (IMAX 0 (IDIFFERENCE SCREENHEIGHT (IPLUS HEIGHT 10)]

(READNUM.SET.WINDOWPROPS

[LAMBDA (WINDOW MINIMUM MAXIMUM DISPLAYCHARS DISPLAYREGION MINIMUMREGION MAXIMUMREGION)

(* Gaska " 6-Mar-87 09:39")

(* * Set window properties for READNUM)

(WINDOWPROP WINDOW (QUOTE MINIMUM)
MINIMUM)
(WINDOWPROP WINDOW (QUOTE MAXIMUM)
MAXIMUM)
(WINDOWPROP WINDOW (QUOTE DISPLAYCHARS)
DISPLAYCHARS)
(WINDOWPROP WINDOW (QUOTE DISPLAYREGION)
DISPLAYREGION)
(WINDOWPROP WINDOW (QUOTE MINIMUMREGION)
MINIMUMREGION)
(WINDOWPROP WINDOW (QUOTE MAXIMUMREGION)
MAXIMUMREGION)
(WINDOWPROP WINDOW (QUOTE TOTAL)
"0")
(WINDOWPROP WINDOW (QUOTE RESHAPEFN)
(QUOTE DON'T))

```
(WINDOWPROP WINDOW (QUOTE SHRINKFN)
 (QUOTE DON'T))
(WINDOWADDPROP WINDOW (QUOTE CLOSEFN)
 (QUOTE READNUM.CLOSEFN])
```

(READNUM.UPDATE

[LAMBDA (WINDOW NEWVALUE) (* Gaska "9-Mar-87 16:19")

(* * Update the READNUM window)

```
(COND
 ([AND (WINDOWPROP WINDOW (QUOTE MINIMUM))
 (MINUSP (MKATOM NEWVALUE))
 (LESSP (MKATOM NEWVALUE)
 (WINDOWPROP WINDOW (QUOTE MINIMUM)
 (READNUM.FLASHAREA (WINDOWPROP WINDOW (QUOTE MINIMUMREGION)
 WINDOW))
 [AND (WINDOWPROP WINDOW (QUOTE MAXIMUM))
 (GREATERP (MKATOM NEWVALUE)
 (WINDOWPROP WINDOW (QUOTE MAXIMUM)
 (READNUM.FLASHAREA (WINDOWPROP WINDOW (QUOTE MAXIMUMREGION)
 WINDOW))
 ((IGREATERP (NCHARS NEWVALUE)
 (WINDOWPROP WINDOW (QUOTE DISPLAYCHARS)))
 (READNUM.FLASHAREA (WINDOWPROP WINDOW (QUOTE DISPLAYREGION)
 WINDOW))
 (T (WINDOWPROP WINDOW (QUOTE TOTAL)
 NEWVALUE)
 (READNUM.DISPLAY.TOTAL WINDOW])
```

(READNUM.WHENHELDFN

[LAMBDA (ITEM MENU BUTTON) (* Gaska "5-Mar-87 07:35")

(* * Print explanations when menu items are held down)

```
(LET ((MESSAGE (SELECTQ ITEM
 (Abt "Abort number input and return NIL")
 (Clr "Clear the total to zero")
 (OK "Terminate number input and return the total")
 (BS "Delete last digit")
 (%. "Insert a decimal point")
 (- "Change sign of total")
 (% NIL)
 "Insert this digit to the right of the total")))
 (if MESSAGE
 then (PROMPTPRINT MESSAGE]))
```

(READTIME

[LAMBDA (MESSAGE POSITION FONT ONEDAY NOABORT NOSECONDS) (* Gaska "3-Apr-87 11:03")

(* * Create a keypad for entry of time)

```
(PROG* ([FONT (FONTCREATE (OR FONT (QUOTE (GACHA 12 BRR]
 (MENU (READTIME.CREATE.MENU FONT NOABORT))
 (DISPLAYWINDOW (READNUM.CREATE.DISPLAY MESSAGE POSITION FONT NIL NIL T NIL
 (if NOSECONDS
 then 5
 else 8)
 MENU)))
 (ADDMENU MENU DISPLAYWINDOW (CREATEPOSITION (IQUOTIENT (IDIFFERENCE (WINDOWPROP DISPLAYWINDOW
 (QUOTE WIDTH))
 (fetch IMAGEWIDTH of MENU))
 2)
 0))
 (WINDOWPROP DISPLAYWINDOW (QUOTE REPAINTFN)
 NIL)
 (if NOABORT
 then (WINDOWADDPROP DISPLAYWINDOW (QUOTE CLOSEFN)
 (QUOTE DON'T)))
 (WINDOWPROP DISPLAYWINDOW (QUOTE ONEDAY)
 ONEDAY)
 (WINDOWPROP DISPLAYWINDOW (QUOTE NOSECONDS)
 NOSECONDS)
 (WINDOWPROP DISPLAYWINDOW (QUOTE TIMEENTRY)
 T)
 (RETURN (READNUM.LOOP DISPLAYWINDOW])
```

(READTIME.CREATE.MENU

[LAMBDA (FONT NOABORT NOOK) (* Gaska "3-Apr-87 10:54")

(* * Create the READTIME keyboard)

(create MENU

```

ITEMS _ [APPEND (if NOABORT
                then (QUOTE (% ))
                else (QUOTE (Abt)))
        (QUOTE (Clr BS 1 2 3 4 5 6 7 8 9 : 0))
        (if NOOK
          then (QUOTE (% ))
          else (QUOTE (OK))
        )
MENUFONT _ FONT
MENUCOLUMNS _ 3
CENTERFLG _ T
MENUOUTLINESIZE _ 2
WHENSELECTEDFN _ (FUNCTION READTIME.PROCESS)
WHENHELDFN _ (FUNCTION READTIME.WHENHELDFN])

```

(READTIME.MAKE.OUTPUT

[LAMBDA (WINDOW)

(* Gaska " 7-Mar-87 13:52")

(* * Create the final output for READTIME)

```

(PROG* [[PARSED.TIME (READTIME.PARSE.TIME (WINDOWPROP WINDOW (QUOTE TOTAL]
        (HOURS (CAR PARSED.TIME))
        (MINUTES (OR (CADR PARSED.TIME)
                    0))
        (SECONDS (OR (CADDR PARSED.TIME)
                    0))
        (STRING (CONCAT (OR (SUBSTRING HOURS 1 2)
                          (CONCAT "0" HOURS))
                  ":"
                  (OR (SUBSTRING MINUTES 1 2)
                    (CONCAT "0" MINUTES))
                  ":"
                  (OR (SUBSTRING SECONDS 1 2)
                    (CONCAT "0" SECONDS))
        (RETURN (if (WINDOWPROP WINDOW (QUOTE NOSECONDS))
                    then (SUBSTRING STRING 1 5)
                    else STRING])

```

(READTIME.PARSE.TIME

[LAMBDA (VALUE)

(* Gaska " 7-Mar-87 12:26")

(* * Parse a time value into hours, minutes, and seconds)

```

(PROG* [(TIME (UNPACK VALUE))
        (LISTOFTIMES (repeatuntil (NULL TIME)
                                  collect (LET ((NUM (repeatuntil (NULL (FIXP X)) as X in TIME collect X)))
                                             [SETQ TIME (NTH TIME (ADD1 (LENGTH NUM)
                                                                    NUM]
        (RETURN (for X in LISTOFTIMES collect (PACK (for Y in X collect Y when (FIXP Y]))

```

(READTIME.PROCESS

[LAMBDA (ITEM MENU BUTTON)

(* Gaska " 6-Mar-87 14:59")

(* * Process READTIME keyboard entries)

```

(PROG* [(WINDOW (WFROMMENU MENU))
        (TOTAL (WINDOWPROP WINDOW (QUOTE TOTAL]
        (SELECTQ ITEM
          (Abt (WINDOWPROP WINDOW (QUOTE TOTAL)
                NIL)
              (WINDOWPROP WINDOW (QUOTE FINISHED)
                T))
          (Clr (READTIME.UPDATE WINDOW "0"))
          (OK (WINDOWPROP WINDOW (QUOTE FINISHED)
                T))
          (BS (READTIME.UPDATE WINDOW (OR [if (STREQUAL (SUBSTRING TOTAL (SUB1 (NCHARS TOTAL))
                                                       (NCHARS TOTAL))
                                                "00")
                                           then (SUBSTRING TOTAL 1 (IDIFFERENCE (NCHARS TOTAL)
                                                                              3))
                                           else (SUBSTRING TOTAL 1 (SUB1 (NCHARS TOTAL)
                                                                              "0"))))
          (: (READTIME.UPDATE WINDOW (CONCAT TOTAL ":00")))
          (READTIME.UPDATE WINDOW (CONCAT (if (STREQUAL TOTAL "0")
                                             then ""
                                             else TOTAL)
            ITEM])

```

(READTIME.UPDATE

[LAMBDA (WINDOW NEWVALUE NOCHECK)

(* Gaska " 3-Apr-87 11:02")

(* * Update the READNUM window)

```

(PROG* ((PARSED.TIME (READTIME.PARSE.TIME NEWVALUE))

```

```

(LASTENTRY (EQUAL (GLC (CONCAT NEWVALUE))
                  (QUOTE :)))
(HOURS (CAR PARSED.TIME))
(MINUTES (CADR PARSED.TIME))
(SECONDS (CADDR PARSED.TIME))
(if [OR (IGREATERP (LENGTH PARSED.TIME)
                  3)
      (AND (WINDOWPROP WINDOW (QUOTE NOSECONDS))
            (IGREATERP (LENGTH PARSED.TIME)
                       2))
    (IGREATERP HOURS (if (WINDOWPROP WINDOW (QUOTE ONEDAY))
                        then 23
                        else 99))
    (AND MINUTES (IGREATERP MINUTES 60))
    (AND SECONDS (IGREATERP SECONDS 60))
    (AND MINUTES LASTENTRY (WINDOWPROP WINDOW (QUOTE NOSECONDS))
      then (READNUM.FLASHAREA (WINDOWPROP WINDOW (QUOTE DISPLAYREGION))
                              WINDOW)
    else (WINDOWPROP WINDOW (QUOTE TOTAL)
        (CONCAT (OR (SUBSTRING HOURS 1 2)
                   (if (AND (ZEROP HOURS)
                           (NULL MINUTES))
                       then "0"
                       else (CONCAT "0" HOURS)))
        (if (OR LASTENTRY MINUTES)
            then ":"
            else "")
        (if MINUTES
            then (OR (SUBSTRING MINUTES 1 2)
                    (CONCAT "0" MINUTES))
            else "")
        (if (AND MINUTES (OR LASTENTRY SECONDS))
            then ":"
            else "")
        (if SECONDS
            then (OR (SUBSTRING SECONDS 1 2)
                    (CONCAT "0" SECONDS))
            else "")))
      (READNUM.DISPLAY.TOTAL WINDOW])

```

(READTIME.WHENHELDFN

[LAMBDA (ITEM MENU BUTTON)

(* Gaska "6-Mar-87 14:45")

(* * Print explanations when menu items are held down)

```

(LET ((MESSAGE (SELECTQ ITEM
                      (Abt "Abort time input and return NIL")
                      (Clr "Clear the time to zero")
                      (OK "Terminate input and return the time")
                      (BS "Delete last entry")
                      (: "Start minutes or seconds entry")
                      (% NIL)
                      "Insert this digit to the right of the total")))
      (if MESSAGE
          then (PROMPTPRINT MESSAGE])

```

(READTIMEW

[LAMBDA (MESSAGE POSITION FONT ONEDAY NOSECONDS)

(* Gaska "6-Apr-87 09:01")

(* * Create a keypad for entry of time)

```

(PROG* ([FONT (FONTCREATE (OR FONT (QUOTE (GACHA 12 BRR))
                          (MENU (READTIME.CREATE.MENU FONT T T))
                          (DISPLAYWINDOW (READNUM.CREATE.DISPLAY MESSAGE POSITION FONT NIL NIL T NIL)
                                          (if NOSECONDS
                                              then 5
                                              else 8)
                                          MENU)))
      (ADDMENU MENU DISPLAYWINDOW (CREATEPOSITION (IQUOTIENT (IDIFFERENCE (WINDOWPROP DISPLAYWINDOW
                                                                                   (QUOTE WIDTH))
                                                                                   (fetch IMAGEWIDTH of MENU))
                                                  2)
          0))
      (WINDOWPROP DISPLAYWINDOW (QUOTE REPAINTFN)
        NIL)
      (WINDOWADDDPROP DISPLAYWINDOW (QUOTE CLOSEFN)
        (QUOTE DON'T))
      (WINDOWPROP DISPLAYWINDOW (QUOTE NOSECONDS)
        NOSECONDS)
      (WINDOWPROP DISPLAYWINDOW (QUOTE ONEDAY)
        ONEDAY)
      (WINDOWPROP DISPLAYWINDOW (QUOTE TIMEENTRY)
        T)
      (RETURN DISPLAYWINDOW])

```

```
{MEDLEY}<notecards>library>readnum.;1
```

```
)
```

```
(RPAQ? READNUM.DEFAULT.MAXDIGITS 9)
```

```
(DECLARE: DOEVAL@COMPILE DONTCOPY
```

```
(GLOBALVARS READNUM.DEFAULT.MAXDIGITS)
```

```
)
```

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