

File created: 16-Mar-2024 07:49:47 {WMEDLEY}<lispusers>tmax>TMAX-DATE.;4

edit by: rmk

changes to: (FNS DATE.GETFN)

previous date: 17-Mar-2022 23:03:32 {WMEDLEY}<lispusers>tmax>TMAX-DATE.;3

Read Table: XCL

Package: INTERLISP

Format: XCCS

(RPAQQ **TMAX-DATECOMS**

;; Developed under support from NIH grant RR-00785. Written by Frank Gilmurray and Sami Shaio. Updated by Ron Kaplan (2021)

;;; TMAX-DATE ImageObject functions

```
(FNS DATEOBJ DATEOBJP DATE.DISPLAYFN DATE.IMAGEBOXFN DATE.PUTFN DATE.GETFN DATE.COPYFN
DATE.BUTTONEVENTINFN)
```

;;; Date support functions

```
(FNS CURRENT.DISPLAY.FONT CHANGE.DATE.FORMAT)
```

;;; Functions to change date format

```
(FNS FINDTIME FINDHOUR AMPM FINDDAY NUMP FINDMONTH FINDYEAR)
(VARS DATE.FORMAT.ITEMS)
(FNS MAKE.DATEOBJ.IMAGEFNS)
(INITVARS (\\DATEOBJ.IMAGEFNS (MAKE.DATEOBJ.IMAGEFNS)))
(ADDVARS (IMAGEOBJGETFNS (DATE.GETFN)))
(DECLARE\ : DOEVAL@COMPILE DONTCOPY (RECORDS DATERECORD))))
```

;; Developed under support from NIH grant RR-00785. Written by Frank Gilmurray and Sami Shaio. Updated by Ron Kaplan (2021)

;;; TMAX-DATE ImageObject functions

(DEFINEQ

(**DATEOBJ**

```
(LAMBDA (DATE/TIME DATE.STRING TEMPLATE) (* |fsg| "13-Jul-87 11:51")

(* * |Create| |an| |instance| |of| \a DATE |imageobj|.|)

(LET* ((TEMPLATE.TYPE (OR TEMPLATE ' (M D Y F)))
(DATEANDTIME (OR DATE/TIME (MKSTRING (DATE))))
(DISPLAYDATE (OR DATE.STRING (CHANGE.DATE.FORMAT DATEANDTIME TEMPLATE.TYPE)))
(NEWOBJ (IMAGEOBJCREATE (|create| DATERECORD
DATESTRING _ DATEANDTIME
DISPLAY.DATE _ DISPLAYDATE
TEMPLATE.DATE _ TEMPLATE.TYPE)
\\DATEOBJ.IMAGEFNS)))
(IMAGEOBJPROP NEWOBJ 'TYPE 'DATEOBJ)
NEWOBJ)))
```

(**DATEOBJP**

```
(LAMBDA (IMOBJ) (* |ss| "27-Jun-87 15:39")

(* |Tests| |an| |imageobj| |to| |see| |if| |it| |is| \a |date| |imageobject|.|
By |convention|. |testing| |functions| |for| |an| |imageobject| |will| |be| |named|
(CONCAT |<type| |of| |imageobj>| "P")

(AND IMOBJ (EQ (IMAGEOBJPROP IMOBJ 'TYPE)
'DATEOBJ)))
```

(**DATE.DISPLAYFN**

```
(LAMBDA (OBJ STREAM STREAMTYPE HOSTSTREAM) (* |fsg| "17-Sep-87 10:44")

(* * |Display| |function| |for| |date| |imageobjs|.|)

(TMAX.SHADEOBJ OBJ STREAM)
(PRIN1 (|fetch| DISPLAY.DATE |of| (|fetch| OBJECTDATUM |of| OBJ)
STREAM)))
```

(**DATE.IMAGEBOXFN**

```
(LAMBDA (OBJ STREAM CURRENTX RIGHTMARGIN) (* |ss| "27-Jun-87 15:38")

(* * |Return| |the| |ImageBox| |for| |the| |date| |string|. |The| |size| |is| |determined| |by| |the| |stream's| |current| |font|.|)
```

```
(DSPFONT (CURRENT.DISPLAY.FONT STREAM)
  STREAM)
(|create| IMAGEBOX
  XSIZE _ (STRINGWIDTH (|fetch| DISPLAY.DATE |of| (|fetch| OBJECTDATUM |of| OBJ))
    STREAM)
  YSIZE _ (FONTPROP STREAM 'HEIGHT)
  YDESC _ (FONTPROP STREAM 'DESCENT)
  XKERN _ 0)))
```

(DATE.PUTFN

```
(LAMBDA (OBJ STREAM) (* |ss:| "27-Jun-87 15:38")
  (PRIN2 (LIST ' |Date| (|fetch| OBJECTDATUM |of| OBJ)
    STREAM)))
```

(DATE.GETFN

```
(LAMBDA (STREAM COPY.OBJECT) ; Edited 16-Mar-2024 07:45 by rmk
  (TSP.SETUP.FMMENU (\\TEDIT.PRIMARYW TEXTOBJ)) (* |fsg| "20-Aug-87 14:56")
  (APPLY (FUNCTION DATEOBJ
    (OR COPY.OBJECT (CADR (READ STREAM))))))
```

(DATE.COPYFN

```
(LAMBDA (IMAGE.OBJ SOURCE.STREAM TARGET.STREAM) (* |fsg| "23-Jul-87 11:34")
  (* * |Here| |to| COPY \\a |Date| |Image| |Object|.|)
  (SELECTQ (IMAGESTREAMTYPE TARGET.STREAM)
    (TEXT (LET ((TEXTOBJ (TEXTOBJ TARGET.STREAM)))
      (APPLY* (IMAGEOBJPROP IMAGE.OBJ 'GETFN)
        TARGET.STREAM
        (|fetch| OBJECTDATUM |of| IMAGE.OBJ))))
    (ERROR "Unknown TARGET stream type" (IMAGESTREAMTYPE TARGET.STREAM))))
```

(DATE.BUTTONEVENTINFN

```
(LAMBDA (OBJ WINDOWSTREAM SELECTION RELX RELY WINDOW HOSTSTREAM BUTTON) (* |fsg| "11-Aug-87 13:56")
  (AND (MOUSESTATE MIDDLE)
    (LET ((OLD.DATE (|fetch| OBJECTDATUM |of| OBJ))
      (NEW.DATE (MENU (|create| MENU
        TITLE _ ' |Date/Time Menu|
        ITEMS _ DATE.FORMAT.ITEMS
        CENTERFLG _ T))))
      (AND NEW.DATE (NOT (EQUAL (|fetch| (DATARECORD TEMPLATE.DATE) |of| OLD.DATE)
        NEW.DATE))
        (PROGN (|with| DATARECORD OLD.DATE (COND
          ((LISTP NEW.DATE)
            (SETQ DISPLAY.DATE (CHANGE.DATE.FORMAT DATESTRING
              NEW.DATE)))
          (SETQ TEMPLATE.DATE NEW.DATE))
            (T (SETQ DATESTRING (MKSTRING (DATE)))
              (SETQ DISPLAY.DATE (CHANGE.DATE.FORMAT DATESTRING
                TEMPLATE.DATE))))))
        'CHANGED))))))
)
```

;;; Date support functions

```
(DEFINEQ
```

(CURRENT.DISPLAY.FONT

```
(LAMBDA (STREAM) ; Edited 12-Mar-88 15:28 by drc:
```

;;; Return the current font. This function is here instead of TMAX because the DATE code is also used in the LetterHead code.

```
(LET ((CURRENT.FONT (|fetch| CLFONT |of| (|with| TEXTSTREAM (TEXTSTREAM TEXTOBJ)
  CURRENTLOOKS))))
  (COND
    ((TYPENAMEP CURRENT.FONT 'FONTDESCRIPTOR)
      CURRENT.FONT)
    ((TYPENAMEP CURRENT.FONT 'FONTCLASS)
      (|fetch| DISPLAYFD |of| CURRENT.FONT))
    (T (SHOULDNT "Can't get current font")))))
```

(CHANGE.DATE.FORMAT

```
(LAMBDA (DATE TEMPLATE) ; Edited 24-Oct-2021 13:47 by rmk:
  (* |ss:| "27-Jun-87 15:36")
```

;;; Convert the string DATE to the format specified by TEMPLATE.

```
(COND
```

```

(TEMPLATE (LET ((VERSION (SELECTQ (CAR (LAST TEMPLATE))
                                   (A 'ABBREV)
                                   (F 'FULL)
                                   'EURO)))
  (FUNCLST ' ((D FINDDAY)
              (M FINDMONTH)
              (Y FINDYEAR))))
(COND
  ((EQ T (CAR TEMPLATE))
   (FINDTIME DATE VERSION))
  (T (LET ((CH (|if| (EQ VERSION 'ABBREV)
                    |then| "/"
                    |else| " ")))
      (CONCAT (APPLY (CADR (ASSOC (CAR TEMPLATE)
                                FUNCLST))
                  (LIST DATE VERSION))
              CH
              (APPLY (CADR (ASSOC (CADR TEMPLATE)
                                FUNCLST))
                    (LIST DATE VERSION))
              (|if| (EQUAL CH " ")
                  |then| ", "
                  |else| CH)
              (APPLY (CADR (ASSOC (CADDR TEMPLATE)
                                FUNCLST))
                    (LIST DATE VERSION)))))))
(T (DATE))))
)

```

;;; Functions to change date format

(DEFINEQ

(**FINDTIME**

(LAMBDA (OLDDATE VERSION)

; Edited 24-Oct-2021 13:28 by rmk:

;; RMK: The spell-out default is very strange: it rounds the minutes to the nearest half hour.

;; RMK: Correct for Y2K: Substrings then work. Still, terrible code.

(* |ss:| "27-Jun-87 15:40")

```

(LET* ((UPDATE (\UNPACKDATE (IDATE OLDDATE)))
       (HOUR (CAR (NTH UPDATE 4)))
       (MINUTES (CAR (NTH UPDATE 5))))
  (SELECTQ VERSION
    (ABBREV (CONCAT (FINDHOUR HOUR)
                    ":" MINUTES " " (AMPM HOUR)))
    (EURO (SUBSTRING OLDDATE 13 17))
    (CONCAT (SELECTQ (|if| (LESSP MINUTES 46)
                        |then| (FINDHOUR HOUR)
                        |else| (PLUS 1 (FINDHOUR HOUR)))
            (1 "one")
            (2 "two")
            (3 "three")
            (4 "four")
            (5 "five")
            (6 "six")
            (7 "seven")
            (8 "eight")
            (9 "nine")
            (10 "ten")
            (11 "eleven")
            (12 "twelve")
            NIL)
            " "
            (|if| (AND (GREATERP MINUTES 15)
                    (LESSP MINUTES 45))
                |then| "thirty"
                |else| "o'clock")
            " "
            (AMPM HOUR))))))

```

(**FINDHOUR**

(LAMBDA (HOUR)

; Edited 24-Oct-2021 13:35 by rmk:

(* |ss:| " 8-Feb-86 17:49")

```

(COND
  ((LESSP HOUR 13)
   HOUR)
  (T (IDIFFERENCE HOUR 12))))

```

(**AMPM**

(LAMBDA (HOUR)

; Edited 24-Oct-2021 13:37 by rmk:

```

(|if| (OR (LESSP HOUR 12)
          (EQ HOUR 24))
  |then| "a.m."
  |else| "p.m."))

```

(FINDDAY

```
(LAMBDA (OLDDATE VERSION)
  (MKATOM (|if| (NUMP (SUBSTRING OLDDATE 1 2))
    |then| (SUBSTRING OLDDATE 1 2)
    |else| (SUBSTRING OLDDATE 2 2))))))
```

(* |shw:| " 1-Jul-85 11:28")

(NUMP

```
(LAMBDA (N)
  (NOT (NULL (NUMBERP (MKATOM N))))))
```

(* |edited:| " 4-Apr-86 17:55")
(* |changed|)**(FINDMONTH**

```
(LAMBDA (OLDDATE VERSION)
```

; Edited 24-Oct-2021 13:52 by rmk:
(* |ss:| "27-Jun-87 15:40")

;; \UNPACKDATE uses 0 origin for months

```
(LET ((MONTH (ASSOC (ADD1 (CAR (NTH (\\UNPACKDATE (IDATE OLDDATE))
  2))))
  '((1 |Jan| |January|)
    (2 |Feb| |February|)
    (3 |Mar| |March|)
    (4 |Apr| |April|)
    (5 |May| |May|)
    (6 |Jun| |June|)
    (7 |Jul| |July|)
    (8 |Aug| |August|)
    (9 |Sep| |September|)
    (10 |Oct| |October|)
    (11 |Nov| |November|)
    (12 |Dec| |December|))))
  (|if| (EQ VERSION 'ABBREV)
    |then| (CADR MONTH)
    |else| (CADDR MONTH))))
```

(FINDYEAR

```
(LAMBDA (OLDDATE VERSION)
  (CAR (\\UNPACKDATE (IDATE OLDDATE))))
```

; Edited 24-Oct-2021 13:48 by rmk:
(* |ss:| "27-Jun-87 15:41")

)

(RPAQQ DATE.FORMAT.ITEMS

```
((|Month Day, Year| ' (M D Y F)
  "Insert current date as \"March 8, 1952\"")
(|Month/Day/Year| ' (M D Y A)
  "Insert current date as \"3/8/52\"")
(|Day Month, Year| ' (D M Y F)
  "Insert current date as \"8 March, 1952\"")
(|Day/Month/Year| ' (D M Y A)
  "Insert current date as \"8/3/52\"")
(|Time| ' (T F)
  "Insert current time as \"four thirty p.m.\"")
(|Numbered Time| ' (T A)
  "Insert current time as \"4:30 p.m.\"")
(|Military Time| ' (T E)
  "Insert current time as \"16:30\"")
(|Update| T "Convert to current date/time"))
```

(DEFINEQ

(MAKE.DATEOBJ.IMAGEFNS

```
(LAMBDA NIL
  (IMAGEFNSCREATE (FUNCTION DATE.DISPLAYFN)
    (FUNCTION DATE.IMAGEBOXFN)
    (FUNCTION DATE.PUTFN)
    (FUNCTION DATE.GETFN)
    (FUNCTION DATE.COPYFN)
    (FUNCTION DATE.BUTTONEVENTINFN)
    (FUNCTION NIL)
    (FUNCTION NIL)
    (FUNCTION NIL)
    (FUNCTION NIL)
    (FUNCTION NIL)
    (FUNCTION NIL)
    (FUNCTION NIL)
    (FUNCTION NIL))))
```

; Edited 17-Mar-2022 23:03 by rmk

)

(RPAQ? \DATEOBJ.IMAGEFNS (MAKE.DATEOBJ.IMAGEFNS))

(ADDTOVAR IMAGEOBJGETFNS (DATE.GETFN))

```
{MEDLEY}<lispusers>tmax>TMAX-DATE.;1  
(DECLARE\ :DOEVAL@COMPILE DONTCOPY  
(DECLARE\ :EVAL@COMPILE  
(RECORD DATERECORD (DATESTRING DISPLAY.DATE TEMPLATE.DATE))  
)  
)
```

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