

File created: 23-Feb-2024 22:24:01 {WMEDLEY}<library>lafite>LAFITE-SORT.;2

edit by: rmk

changes to: (VARS LAFITE-SORTCOMS)

previous date: 23-Feb-2024 22:07:18 {WMEDLEY}<library>lafite>LAFITE-SORT.;1

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

(RPAQQ **LAFITE-SORTCOMS**

```
[(DECLARE%: EVAL@COMPILE DONTCOPY (FILES (SOURCE)
                                     LAFITE-DECLS))
 (FNS LAFITE.ASSURE.DATE.FIELDS LAFITE.PARSE.DATE.FIELD LAFITE.PARSE.DATE.FIELD.ONLY LAFITE.SORT.BY.DATE
      LAFITE.SORT.MESSAGES LAFITEMSG.DATE.ORDER \LAFITE.SORT.BY.DATE.INTERACTIVE
      \LAFITE.SORT.BY.DATE.REGION)
 [APPENDVARS (LAFITEEXTRAMENUITEMS ("Sort by Date" '\LAFITE.SORT.BY.DATE.INTERACTIVE "Sort all the
                                     messages in this folder by their Date: fields."
                                     (SUBITEMS ("Sort Entire Folder"
                                               '\LAFITE.SORT.BY.DATE.INTERACTIVE "Sort all
                                               the messages in this folder by their Date:
                                               fields,")
                                               ("Sort Selected Range" '\LAFITE.SORT.BY.DATE.REGION
                                               "Sort only the messages between the first and
                                               last selected messages."])
                                     ; Date hax
 (COMS
  (FNS GDATE1-6)
  (DECLARE%: EVAL@COMPILE DONTCOPY (CONSTANTS \4YearsDays)
   (GLOBALVARS \TimeZoneComp \DayLightSavings])
```

(DECLARE%: EVAL@COMPILE DONTCOPY

(FILESLOAD (SOURCE)
 LAFITE-DECLS)
)

(DEFINEQ

(**LAFITE.ASSURE.DATE.FIELDS**

[LAMBDA (FOLDER FIRST# LAST#) ; Edited 5-May-89 15:46 by bvm

;; Assure that messages FIRST# thru LAST# have IDATE fields. FIRST# & LAST# default.

(for I from (OR FIRST# 1) to (OR LAST# (fetch (MAILFOLDER %#OFMESSAGES) of FOLDER))

```
  bind (STREAM _ (\LAFITE.OPEN.FOLDER FOLDER 'INPUT :ABORT))
        (MESSAGES _ (fetch (MAILFOLDER MESSAGEDESCRIPTORS) of FOLDER))
        (FAILURECNT _ 0)
        (MISSING _ 0)
        MSG ID PREV DATEFAILURE DATEFETCHED BABBLED
```

```
  do [if (fetch (LAFITEMSG DATEFETCHED?) of (SETQ MSG (NTHMESSAGE MESSAGES I)))
      then ;Ok
```

```
        (if (NOT (fetch (LAFITEMSG DATEKNOWN?) of MSG))
            then (add FAILURECNT 1))
```

```
    else (if (NOT BABBLED)
```

```
          then ; Tell user what's taking so long
              (LAB.PROMPTPRINT FOLDER "Collecting dates... ")
              (SETQ BABBLED T))
```

```
    (if (FIXP (SETQ ID (LAFITE.PARSE.HEADER STREAM \LAPARSE.DATEFIELD (fetch (LAFITEMSG START)
                                                                              of MSG)
```

```
          (fetch (LAFITEMSG END) of MSG)
          T)))
```

```
    then (replace (LAFITEMSG IDATE) of MSG with ID)
          (replace (LAFITEMSG DATEKNOWN?) of MSG with T)
          (replace (LAFITEMSG DATEFETCHED?) of MSG with T)
          (replace (LAFITEMSG DATE) of MSG with NIL)
```

; So it will be regenerated in canonical form

```
    (OR DATEFETCHED (SETQ DATEFETCHED I))
```

```
  else (replace (LAFITEMSG DATEKNOWN?) of MSG with NIL)
```

```
    (if LAFITEDEBUGFLG
```

```
        then (LAB.FORMAT FOLDER " ~:[Date missing for~;Could not parse date of~] msg ~D. " ID
              I))
```

```
    (add FAILURECNT 1)
```

```
    (if (NULL ID)
```

```
        then (add MISSING 1))
```

```
    (if [AND (> I 1)
```

```
        (fetch (LAFITEMSG DATEFETCHED?) of (SETQ PREV (NTHMESSAGE MESSAGES (SUB1 I)
                                                                    ; Guess that message i has date just after i-1
```

```
                                                                    (replace (LAFITEMSG IDATE) of MSG with (ADD1 (fetch (LAFITEMSG IDATE) of PREV)))
                                                                    (replace (LAFITEMSG DATEFETCHED?) of MSG with T)
```

```
        else (SETQ DATEFAILURE I)
```

```
  finally (if (AND DATEFETCHED (< DATEFETCHED (fetch (MAILFOLDER TOCLASTMESSAGE#) of FOLDER)))
            then ; Assure that the toc will be rewritten at least this far back so that
```

; we save the dates.

```
    (replace (MAILFOLDER TOCLASTMESSAGE#) of FOLDER with DATEFETCHED))
```

(COND

```

([AND DATEFAILURE (NOT (for I from (ADD1 (OR FIRST# 1)) to (fetch (MAILFOLDER %#OFMESSAGES)
of FOLDER)
when (fetch (LAFITEMSG DATEFETCHED?) of (SETQ MSG (NTHMESSAGE MESSAGES
I)))
do
; Got a date later on
(SETQ ID (fetch (LAFITEMSG IDATE) of MSG))
(for J from DATEFAILURE to (OR FIRST# 1) by -1
do
; Store guess dates for first message(s)
(replace (LAFITEMSG IDATE) of (SETQ MSG (NTHMESSAGE MESSAGES J)
)
with (add ID -1))
(replace (LAFITEMSG DATEFETCHED?) of MSG with T))
(RETURN T)
(LAB.PROMPTPRINT FOLDER "Could not parse dates of ANY messages in this file.")
(> FAILURECNT 0)
(LAB.FORMAT FOLDER (if (< MISSING FAILURECNT)
then " Note: Could not parse date field of ~D of these messages."
else " Note: Missing date field for ~D of these messages.")
FAILURECNT])

```

(LAFITE.PARSE.DATE.FIELD

```

[LAMBDA (STREAM) ; Edited 5-May-89 12:52 by bvm
(LET* ((DATESTR (LAFITE.READ.TO.EOL STREAM))
(ID (IDATE DATESTR)))
(if [AND ID (> ID (CONSTANT (IDATE "1-jan-70 1200")
then
ID
else (CONCAT (OR (SUBSTRING DATESTR 1 6 DATESTR)
DATESTR)
"?")])
; Plausible date. Test is for those silly senders who didn't get the
; date set and have messages reading "31-dec-00 ..."

```

(LAFITE.PARSE.DATE.FIELD.ONLY

```

[LAMBDA (STREAM) ; Edited 26-Apr-89 14:35 by bvm
(DECLARE (USEDFREE PARSERESULT))
(SETQ PARSERESULT (LAFITE.PARSE.DATE.FIELD STREAM])

```

(LAFITE.SORT.BY.DATE

```

[LAMBDA (FOLDER FIRST# LAST#) ; Edited 26-Apr-89 15:32 by bvm
(WITH.MONITOR (fetch (MAILFOLDER FOLDERLOCK) of FOLDER)
(LAFITE.ASSURE.DATE.FIELDS FOLDER FIRST# LAST#)
(LAFITE.SORT.MESSAGES FOLDER (FUNCTION LAFITEMSG.DATE.ORDER)
FIRST# LAST#))]

```

(LAFITE.SORT.MESSAGES

```

[LAMBDA (FOLDER COMPAREFN FIRST# LAST#) ; Edited 7-Oct-89 14:03 by bvm
(WITH.MONITOR (fetch (MAILFOLDER FOLDERLOCK) of FOLDER)
(OR FIRST# (SETQ FIRST# 1))
(OR LAST# (SETQ LAST# (fetch (MAILFOLDER %#OFMESSAGES) of FOLDER)))
(LAB.PROMPTPRINT FOLDER "Sorting... ")
(LET* ((MESSAGES (fetch (MAILFOLDER MESSAGEDESCRIPTORS) of FOLDER))
(SORTED (CL:STABLE-SORT (for I from FIRST# to LAST# collect (NTHMESSAGE MESSAGES I))
COMPAREFN)))
(while (AND SORTED (EQ (fetch (LAFITEMSG %#) of (CAR SORTED))
FIRST#))
do
; Skip over the initial prefix of in-order messages
(add FIRST# 1)
(SETQ SORTED (CDR SORTED)))
(if (NULL SORTED)
then (LAB.PROMPTPRINT FOLDER "already in order")
else (replace (MAILFOLDER FOLDEROUTOFORDER) of FOLDER with T)
(if (< FIRST# (fetch (MAILFOLDER FIRSTCHANGEDMESSAGE) of FOLDER))
then (replace (MAILFOLDER FIRSTCHANGEDMESSAGE) of FOLDER with FIRST#))
(UNINTERRUPTABLY
(for MSG in SORTED as I from FIRST# do (replace (LAFITEMSG %#) of MSG with I)
(SETA MESSAGES I MSG)))
[LET ((FIRSTSEL (fetch (MAILFOLDER FIRSTSELECTEDMESSAGE) of FOLDER))
(LASTSEL (fetch (MAILFOLDER LASTSELECTEDMESSAGE) of FOLDER))
(if (>= LASTSEL FIRSTSEL)
then (if (AND (>= FIRSTSEL FIRST#)
(<= FIRSTSEL LAST#))
then
; Start of selection was inside here, have to recompute its
; number
(replace (MAILFOLDER FIRSTSELECTEDMESSAGE) of FOLDER
with (LAB.FIND.SELECTED.MSG FOLDER FIRST# LAST#)))
(if (AND (>= LASTSEL FIRST#)
(<= LASTSEL LAST#))
then
; End of selection was inside here, have to recompute its number
(replace (MAILFOLDER LASTSELECTEDMESSAGE) of FOLDER
with (LAB.REV.FIND.SELECTED.MSG FOLDER FIRST# LAST#)
(LAB.DISPLAYLINES FOLDER FIRST# LAST# NIL T)
(LAB.PROMPTPRINT FOLDER "done")))]])

```

(LAFITEMSG.DATE.ORDER

```
[LAMBDA (X Y) ; Edited 26-Apr-89 14:53 by bvm
;; True if msg X has older date than msg Y. Since date field is stored as an unboxed 32-bit integer, we open code "<" here to avoid boxing.
(LET [(HIDIFF (- (LOGXOR (fetch (LAFITEMSG IDATEHI) of X)
32768)
(LOGXOR (fetch (LAFITEMSG IDATEHI) of Y)
32768)]
;; HIDIFF is unsigned difference of high words
(OR (< HIDIFF 0)
(AND (EQ HIDIFF 0)
(< (fetch (LAFITEMSG IDATELO) of X)
(fetch (LAFITEMSG IDATELO) of Y)))]
```

(LAFITE.SORT.BY.DATE.INTERACTIVE

```
[LAMBDA (FOLDER FIRST# LAST#) ; Edited 3-May-89 18:38 by bvm
(if (LAB.MOUSECONFIRM FOLDER "Click LEFT to confirm sorting ~D messages by date"
(if LAST#
then (ADD1 (- LAST# FIRST#))
else (fetch (MAILFOLDER %#OFMESSAGES) of FOLDER)))
then (\LAFITE.PROCESS `((FUNCTION LAFITE.SORT.BY.DATE)
',FOLDER
',FIRST#
',LAST#)
"LafiteSort"])
```

(LAFITE.SORT.BY.DATE.REGION

```
[LAMBDA (FOLDER) ; Edited 28-Apr-89 16:23 by bvm
(LET ((FIRST# (fetch (MAILFOLDER FIRSTSELECTEDMESSAGE) of FOLDER))
(LAST# (fetch (MAILFOLDER LASTSELECTEDMESSAGE) of FOLDER)))
(if (> LAST# FIRST#)
then (\LAFITE.SORT.BY.DATE.INTERACTIVE FOLDER FIRST# LAST#)
else (LAB.FORMAT FOLDER "There is ~:[no~;only one~] message selected." (EQ LAST# FIRST#))
```

```
[APPENDTOVAR LAFITEEXTRAMENUITEMS ("Sort by Date" '\LAFITE.SORT.BY.DATE.INTERACTIVE "Sort all the messages in
this folder by their Date: fields." (SUBITEMS ("Sort Entire Folder"
```

```
'
\LAFITE.SORT.BY.DATE.INTERACTIVE
"Sort all the messages
in this folder by their
Date: fields."
("Sort Selected Range"
'
\LAFITE.SORT.BY.DATE.REGION
"Sort only the messages
between the first and last
selected messages."]
```

;; Date hax

(DEFINEQ

(GDATE1-6

```
[LAMBDA (D) ; Edited 26-Apr-89 15:24 by bvm
;; Return a string containing the day and month given in internal date D.
;; This is an optimization by source code simplification of (SUBSTRING (GDATE IDT) 1 6)
(PROG ((CHECKDLS \DayLightSavings)
[DQ (IQUOTIENT (LRSH (LISP.TO.ALTO.DATE D)
1)
(CONSTANT (IQUOTIENT (TIMES 60 60)
2)]
HR DAY4 YDAY WDAY YEAR4 TOTALDAYS DLS) ; DQ is number of hours since day 0, getting us past the sign bit
; problem.
;; Now we can adjust to the current time zone. Since this might cause DQ to go negative, first add in 4 years worth of hours, making the base
;; date be Jan 1, 1897
(SETQ HR (IREMAINDER (SETQ DQ (- (+ DQ (CONSTANT (ITIMES 24 \4YearsDays)))
\TimeZoneComp))
24))
(SETQ TOTALDAYS (IQUOTIENT DQ 24))
DTLOOP
(SETQ DAY4 (IREMAINDER TOTALDAYS \4YearsDays)) ; DAY4 = number of days since last leap year day 0
[SETQ DAY4 (+ DAY4 (CDR (\TSCAN DAY4 '(789 . 3)
(424 . 2)
(59 . 1)
(0 . 0)]
; pretend every year is a leap year, adding one for days after Feb
; 28
```

```

(SETQ YEAR4 (IQUOTIENT TOTALDAYS \4YearsDays)) ; YEAR4 = number of years til that last leap year / 4
(SETQ YDAY (IREMAINDER DAY4 366)) ; YDAY is the ordinal day in the year (jan 1 = zero)
(SETQ WDAY (IREMAINDER (+ TOTALDAYS 3)
7))
[COND
((AND CHECKDLS (SETQ DLS (\ISDST? YDAY HR WDAY)))
;; This date is during daylight savings, so add 1 hour. Third arg is day of the week, which we determine by taking days mod 7 plus
;; offset. Monday = zero in this scheme. Jan 1 1897 was actually a Friday (not Thursday=3), but we're cheating--1900 was not a leap
;; year
(COND
((> (SETQ HR (ADD1 HR))
23)
;; overflowed into the next day. This case is too hard (we might have overflowed the month, for example), so just go back and
;; recompute
(SETQ TOTALDAYS (ADD1 TOTALDAYS))
(SETQ HR 0)
(SETQ CHECKDLS NIL)
(GO DTLOOP]
(RETURN (LET* ([MONTH (\DTSCAN YDAY '((335 . "Dec")
(305 . "Nov")
(274 . "Oct")
(244 . "Sep")
(213 . "Aug")
(182 . "Jul")
(152 . "Jun")
(121 . "May")
(91 . "Apr")
(60 . "Mar")
(31 . "Feb")
(0 . "Jan"]
[DAY (ADD1 (- YDAY (CAR MONTH]
(RESULT (CONCAT " " (CDR MONTH]
(\RPLRIGHT RESULT 2 DAY 1)
RESULT]))
)
)
(DECLARE%: EVAL@COMPILE DONTCOPY
(DECLARE%: EVAL@COMPILE
(RPAQQ \4YearsDays 1461)
(CONSTANTS \4YearsDays)
)
(DECLARE%: DOEVAL@COMPILE DONTCOPY
(GLOBALVARS \TimeZoneComp \DayLightSavings)
)
)

```

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