

File created: 29-Nov-2021 14:05:45 {DSK}<Users>kaplan>Local>medley3.5>my-medley>sources>COMPARE.;3

changes to: (FNS COMPARE1)

previous date: 5-Nov-2021 20:53:09 {DSK}<Users>kaplan>Local>medley3.5>my-medley>sources>COMPARE.;2

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

::
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(RPAQQ **COMPARECOMS**

```
((FNS COMPARELST COMPARE1 COMPAREPRINT COMPAREPRINT1 COMPARELISTS COMPAREPRINTN COMPARENCHARS COMPAREFAIL
  COMPAREMAX COUNTDOWN)
 (ADDVARS (COMPARETRANSFORMS))
 (INITVARS (*COMPARE-LEVEL* 1)
            (*COMPARE-LENGTH* 2))
 (SPECVARS *COMPARE-LEVEL* *COMPARE-LENGTH* DIFFERENCES LOOSEMATCH)
 (GLOBALVARS COMPARETRANSFORMS COMMENTFLG)))
```

(DEFINEQ

(**COMPARELST**

```
[LAMBDA (X Y LOOSEMATCH)
  (DECLARE (SPECVARS LOOSEMATCH))
  [COND
    ((EQ LOOSEMATCH -1)
     (SETQ LOOSEMATCH (COMPAREMAX X Y)
      (COMPARE1 X Y))
```

; Edited 20-Jan-87 12:38 by bvm:

(**COMPARE1**

```
[LAMBDA (X Y)
```

; Edited 29-Nov-2021 13:49 by rmk:
(* Imm "29-AUG-78 18:35")

;; returns T if X and Y are similar; if LOOSEMATCH then sets DIFFERENCES to changes

```
(AND [OR (EQ X Y)
  (COND
    [(LISTP X)
     (COND
       [(LISTP Y)
        (OR (AND (EQ (CAR X)
                    COMMENTFLG)
                  (EQ (CAR Y)
                      COMMENTFLG))
          (PROG NIL
             LP (RETURN (COND
                    ((NLISTP X)
                     (OR (EQUALALL X Y)
                        (COMPAREFAIL X Y)))
                    ((NLISTP Y)
                     (COMPAREFAIL X Y))
                    (NOT (COMPARE1 (CAR X)
                                     (CAR Y)))
                    NIL)
             (T (SETQ X (CDR X))
                (SETQ Y (CDR Y))
                (GO LP)
              (T (COMPAREFAIL X Y)
                (T (OR (EQUALALL X Y)
                    (COMPAREFAIL X Y)
                  (OR LOOSEMATCH T))
```

(**COMPAREPRINT**

```
[LAMBDA (X Y STREAM)
  (PROG ((*PRINT-LEVEL* *COMPARE-LEVEL*)
        (*PRINT-LENGTH* *COMPARE-LENGTH*)
        (PLVLFLEFLG T)
        (FIN)
        (COND
          ((EQUAL X Y)
           (RETURN NIL)))
        (COND
          ((OR (NLISTP X)
              (NLISTP Y))
           (PRINT X STREAM)
           (PRINT Y STREAM)
           (GO FIN)))
        (PRIN1 '% (STREAM)
          (COMPAREPRINT1 X Y STREAM)
          (PRIN1 '%) STREAM)
```

; Edited 20-Jan-87 12:20 by bvm:

; Print list X by comparison with list Y

```

( TERPRI STREAM)
( PRIN1 '%( STREAM)
(COMPAREPRINT1 Y X STREAM)
( PRIN1 '%) STREAM)
( TERPRI STREAM)
FIN (RETURN T))

```

; Do same for other list

(COMPAREPRINT1

```
[LAMBDA (A B STREAM)
```

; Edited 20-Jan-87 12:28 by bvm:

;;; [JDS: Added STREAM argument to direct output.]

```

(PROG ((N 0)
      (X Y SPACE DOTFLAG L1 TAILX TAILY K)
      (SETQ TAILX A)
      (SETQ TAILY B)
      L1 [COND
        (DOTFLAG (SETQ X TAILX)
                  (SETQ Y TAILY))
        (T (SETQ X (CAR TAILX))
            (SETQ Y (CAR TAILY))

```

; If two sublists are the same just type '&'

```

        [COND
          ((EQ (SETQ K (COMPAREMAX X Y))
               (SETQ K (COMPARELST X Y K)))
           (COND
            ((AND (NOT SPACE)
                  (LITATOM X)
                  (EQ N 0))
             (CL:PRIN1 X STREAM)
             (GO NX1))
            (T (ADD1VAR N)
               (GO NX])

```

(COMPAREPRINTN N SPACE T STREAM)

```

(SETQ N 0)
(COND
  ((OR (NLISTP X)
        (NLISTP Y)))
   [(EQ (CAR X)
         COMMENTFLG)
    (PRIN1 **COMMENT**FLG STREAM)
    (COND
      ((NEQ (CAR Y)
             COMMENTFLG)
       (SETQ TAILX (CDR TAILX))
       (GO L1])
      ((EQ (CAR Y)
            COMMENTFLG)
       (SPACES (NCHARS **COMMENT**FLG)
                STREAM)
       (SETQ TAILY (CDR TAILY))
       (GO L1)))

```

```

  [COND
    ((AND (NULL K)
           (NULL DOTFLAG))
     (COND
      ((AND (LISTP TAILX)
             (LISTP (CDR TAILX))
             (COMPARELST (CADR TAILX)
                           Y -1))
       (CL:PRIN1 X STREAM)
       (SETQ TAILX (CDR TAILX))
       (GO L1))
      ((AND (LISTP TAILY)
             (LISTP (CDR TAILY))
             (COMPARELST (CADR TAILY)
                           X -1))

```

; Next X same as this Y, so just have an inserted item

; Next Y same as this X, so leave space corresponding to the inserted item

```

       (SPACES (COND
                 ((NLISTP Y)
                  (NCHARS Y T))
                 (T
                  (COMPARENCHARS Y)))
                STREAM)
       (SETQ TAILY (CDR TAILY))
       (GO L1])

```

; List would be printed at print level 1, so count carefully

```

(COND
  ((OR (NLISTP X)
        (NLISTP Y))
   (CL:PRIN1 X STREAM))
  (T (PRIN1 '%( STREAM)
            (COMPAREPRINT1 X Y STREAM)
            (PRIN1 '%) STREAM)))

```

; If they are unequal and one is not a list let PRIN2 type out something (atom or list)

; Otherwise print '()' and subanalyze

```

NX1 (SETQ SPACE T)
NX (COND
   ((OR DOTFLAG (NLISTP TAILX)

```

```

      (NOT (CDR TAILX))) ; X list ran out
    (COMPAREPRINTN N SPACE NIL STREAM))
  (T (SETQ DOTFLAG (NLISTP (CDR TAILX)))
    (COND
      ((CDR (LISTP TAILY))
       (SETQ TAILX (CDR TAILX))
       (SETQ TAILY (CDR TAILY))
       (GO L1)))
      (COMPAREPRINTN N SPACE NIL STREAM)
    (COND
      (DOTFLAG (PRIN1 ' " . " STREAM)
                (CL:PRIN1 (CDR TAILX)
                           STREAM)
                )
      (T
       (SPACES 1 STREAM) ; (CDR TAILX) is a list
       (CL:PRIN1 (CADR TAILX)
                  STREAM)
       (AND (CDDR TAILX)
            (PRIN1 ' " --" STREAM]))
    )
  )

```

(COMPARELISTS

```

[LAMBDA (X Y STREAM) ; Edited 20-Jan-87 12:39 by bvm:
  ;; functionally equivalent to CPLISTS . Prints differences on STREAM.
  (SETQ STREAM (GETSTREAM STREAM 'OUTPUT))
  (PROG (DIFFERENCES) ; DIFFERENCES used by COMPAREFAIL
    (DECLARE (SPECVARS DIFFERENCES))
    (COND
      ((NOT (COMPARELST X Y T)) ; lists are different enough to require play by play display
       (COMPAREPRINT X Y STREAM)) ; x and y are different, but only by substitution. Each element of
      [DIFFERENCES] ; differences is a dotted pair
      (for TAIL on DIFFERENCES do (LET ((PAIR (CAR TAIL)))
                                     (CL:FORMAT STREAM "~S -> ~S" (CAR PAIR)
                                                           (CDR PAIR))
                                     (if (CDR TAIL)
                                         then (PRIN1 ", " STREAM]
                                     )
      (T (PRIN1 'SAME STREAM)))
    (TERPRI STREAM])

```

(COMPAREPRINTN

```

[LAMBDA (N SPACE FLG STREAM) ; Edited 5-Nov-2021 20:53 by rmk:
  ; Edited 29-Dec-86 11:56 by jds
  ;; RMK: Added STREAM to POSITION and LINELENGTH
  (COND
    ((NEQ N 0)
     (COND
       (SPACE (SPACES 1 STREAM))
       (T (SETQ SPACE T)))
     (SELECTQ N
      (1 (PRIN1 '& STREAM))
      (PROGN (COND
              ((NOT (ILESSP (IPLUS (POSITION STREAM)
                                  7)
                             (LINELENGTH NIL STREAM)))
               (TERPRI STREAM)))
              (PRIN1 '- STREAM)
              (PRIN2 N STREAM)
              (PRIN1 '- STREAM]
            (AND FLG SPACE (SPACES 1 STREAM]))
    )

```

(COMPARENCHARS

```

[LAMBDA (X) ; Edited 20-Jan-87 12:26 by bvm:
  ;; Count the number of characters that would be printed at the current print depth
  (LET [(COMPARECNT 0)
        (*PRINT-ESCAPE* T)
        (*READTABLE* (\DTEST *READTABLE* 'READTABLEP]
    (DECLARE (SPECVARS *READTABLE* *PRINT-ESCAPE*))
    (\MAPPNAME.INTERNAL [FUNCTION (LAMBDA (S C)
                                   (ADD COMPARECNT 1]
                          X)
    COMPARECNT])

```

(COMPAREFAIL

```

[LAMBDA (X Y) ; Edited 13-Jan-87 14:29 by bvm:
  ;; X and Y are different. Return non-NIL if we are willing to believe that X and Y really are the same for purposes of not going thru
  ;; COMPAREPRINT. DIFFERENCES is a list associating occurrences of X with a value of Y; if all such occurrences are the same, then
  ;; COMPARELST will just print a series of transformations X -> Y.
  (COND
    [(SOME COMPARETRANSFORMS (FUNCTION (LAMBDA (FN)

```

```

                                (CL:FUNCALL FN X Y]
((NULL LOOSEMATCH)                ; exact match demanded
 NIL)
((NUMBERP LOOSEMATCH)
 (IGREATERP [SETQ LOOSEMATCH (COUNTDOWN Y (COUNTDOWN X (SUB1 LOOSEMATCH]
 0))
([AND (NLISTP X)
 (OR (NLISTP Y)
      (EVERY Y (FUNCTION NLISTP]
 (LET ((OLD (FASSOC X DIFFERENCES)))
      (if OLD
          then (EQUAL Y (CDR OLD))
          else (SETQ DIFFERENCES (NCONC1 DIFFERENCES (CONS X Y])

```

(COMPAREMAX

```

[LAMBDA (X Y)                                (* Imm "30-AUG-78 02:19")
 (IQUOTIENT (IDIFFERENCE 65 (IPLUS (COUNTDOWN X 30)
 (COUNTDOWN Y 30)))
 5])

```

(COUNTDOWN

```

[LAMBDA (X N)                                (* Imm "30-AUG-78 02:37")
 (COND
 ((OR (NLISTP X)
      (NOT (IGREATERP N 0)))
  N)
 (T (COUNTDOWN (CDR X)
 (COUNTDOWN (CAR X)
 (SUB1 N])
)

```

(ADDTOVAR **COMPARETRANSFORMS**)

(RPAQ? ***COMPARE-LEVEL*** 1)

(RPAQ? ***COMPARE-LENGTH*** 2)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(SPECVARS ***COMPARE-LEVEL*** ***COMPARE-LENGTH*** DIFFERENCES LOOSEMATCH)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS COMPARETRANSFORMS COMMENTFLG)

(PUTPROPS **COMPARE COPYRIGHT** ("Venue & Xerox Corporation" 1987 1990))

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VARIABLE INDEX

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