File created: 16-May-90 14:31:36 **{DSK}<usr>local>lde>lispcore>sources>CMLSEQMAPPERS.;2**

changes to: (VARS CMLSEQMAPPERSCOMS)

previous date: 1-Jun-87 11:21:23 {DSK}<usr>local>lde>lispcore>sources>CMLSEQMAPPERS.;1

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

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;;
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(RPAQQ CMLSEQMAPPERSCOMS
       ((DECLARE%: EVAL@COMPILE DONTCOPY (FILES CMLSEQCOMMON))
        (FUNCTIONS %%FILL-SLICE %%MAP-FOR-EFFECT %%MAP-FOR-EFFECT-MULTIPLE %%MAP-FOR-EFFECT-SINGLE
               %%MAP-FOR-RESULT-MULTIPLE %%MAP-FOR-RESULT-SINGLE %%MIN-SEQUENCE-LENGTH CL:MAP)
        ;; For compatibility with old optimizers
        (FUNCTIONS %%MAP-SINGLE-FOR-EFFECT %%MAP-SINGLE-TO-LIST %%MAP-SINGLE-TO-SIMPLE %%MAP-TO-LIST
               %%MAP-TO-SIMPLE)
        (OPTIMIZERS CL:MAP)
        (FUNCTIONS %%SOME-MULTIPLE %%SOME-SINGLE %%EVERY-MULTIPLE %%EVERY-SINGLE %%NOTANY-MULTIPLE
               %%NOTANY-SINGLE %%NOTEVERY-MULTIPLE %%NOTEVERY-SINGLE CL:SOME CL:EVERY CL:NOTANY CL:NOTEVERY)
        ;; For compatibility with old optimizers
        (P (MOVD '%%SOME-SINGLE '%%SINGLE-SOME)
           (MOVD '%%EVERY-SINGLE '%%SINGLE-EVERY)
           (MOVD '%%NOTEVERY-SINGLE '%%SINGLE-NOTEVERY)
           (MOVD '%%NOTANY-SINGLE '%%SINGLE-NOTANY))
        (OPTIMIZERS CL:SOME CL:EVERY CL:NOTANY CL:NOTEVERY)
        (FUNCTIONS REDUCE-FROM-END REDUCE-FROM-START CL:REDUCE)
        (PROP FILETYPE CMLSEQMAPPERS)
        (DECLARE%: DONTEVAL@LOAD DONTCOPY DOEVAL@COMPILE (LOCALVARS . T))))

(DECLARE%: EVAL@COMPILE DONTCOPY

(FILESLOAD CMLSEQCOMMON)
)


(DEFMACRO %%FILL-SLICE (INDEX SLICE SEQUENCES)
   `(CL:DO ((%%SUBSLICE ,SLICE (CDR %%SUBSLICE))
            (%%SUBSEQ ,SEQUENCES (CDR %%SUBSEQ))
            %%SEQUENCE)
           ((NULL %%SUBSEQ)
            ,SLICE)
        (SETQ %%SEQUENCE (CAR %%SUBSEQ))
        [RPLACA %%SUBSLICE (SEQ-DISPATCH %%SEQUENCE (PROG1 (CAR %%SEQUENCE)
                                                           (RPLACA %%SUBSEQ (CDR %%SEQUENCE)))
                                    (CL:AREF %%SEQUENCE ,INDEX]))


(CL:DEFUN %%MAP-FOR-EFFECT (FUNCTION SEQUENCE &REST MORE-SEQUENCES)
   (CL:IF (NULL MORE-SEQUENCES)
       (%%MAP-FOR-EFFECT-SINGLE FUNCTION SEQUENCE)
       (%%MAP-FOR-EFFECT-MULTIPLE FUNCTION (CONS SEQUENCE MORE-SEQUENCES))))


(CL:DEFUN %%MAP-FOR-EFFECT-MULTIPLE (FUNCTION SEQUENCES)
   [LET [(MIN-LENGTH (%%MIN-SEQUENCE-LENGTH SEQUENCES))
         (ELT-SLICE (CL:MAKE-LIST (CL:LENGTH SEQUENCES]
        (CL:DOTIMES (I MIN-LENGTH)
            (CL:APPLY FUNCTION (%%FILL-SLICE I ELT-SLICE SEQUENCES)))])


(CL:DEFUN %%MAP-FOR-EFFECT-SINGLE (FUNCTION SEQUENCE)
   [SEQ-DISPATCH SEQUENCE (CL:DOLIST (ELT SEQUENCE)
                             (CL:FUNCALL FUNCTION ELT))
          (CL:DOTIMES (I (VECTOR-LENGTH SEQUENCE))
              (CL:FUNCALL FUNCTION (CL:AREF SEQUENCE I)))])


(CL:DEFUN %%MAP-FOR-RESULT-MULTIPLE (RESULT-TYPE FUNCTION SEQUENCES)
   [LET* ((MIN-LENGTH (%%MIN-SEQUENCE-LENGTH SEQUENCES))
          (ELT-SLICE (CL:MAKE-LIST (CL:LENGTH SEQUENCES)))
          (RESULT (MAKE-SEQUENCE-OF-TYPE RESULT-TYPE MIN-LENGTH)))
         (SEQ-DISPATCH RESULT (CL:DO ((SUBRESULT RESULT (CDR SUBRESULT))
                                      (INDEX 0 (CL:1+ INDEX)))
                                     ((EQL INDEX MIN-LENGTH)
                                      RESULT)
                                   (RPLACA SUBRESULT (CL:APPLY FUNCTION (%%FILL-SLICE INDEX ELT-SLICE SEQUENCES))
                                          ))
                (CL:DO ((INDEX 0 (CL:1+ INDEX)))
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                        ((EQL INDEX MIN-LENGTH)
                         RESULT)
                       (CL:SETF (CL:AREF RESULT INDEX)
                              (CL:APPLY FUNCTION (%%FILL-SLICE INDEX ELT-SLICE SEQUENCES))))])


(CL:DEFUN %%MAP-FOR-RESULT-SINGLE (RESULT-TYPE FUNCTION SEQUENCE)
   (LET* ((LENGTH (CL:LENGTH SEQUENCE))
          (RESULT (MAKE-SEQUENCE-OF-TYPE RESULT-TYPE LENGTH)))
         [SEQ-DISPATCH SEQUENCE [SEQ-DISPATCH RESULT (CL:DO ((SUBSEQ SEQUENCE (CDR SUBSEQ))
                                                             (SUBRESULT RESULT (CDR SUBRESULT)))
                                                            ((NULL SUBSEQ))
                                                          (RPLACA SUBRESULT (CL:FUNCALL FUNCTION (CAR SUBSEQ))))
                                                 (CL:DO ((SUBSEQ SEQUENCE (CDR SUBSEQ))
                                                         (INDEX 0 (CL:1+ INDEX)))
                                                        ((NULL SUBSEQ))
                                                      (CL:SETF (CL:AREF RESULT INDEX)
                                                             (CL:FUNCALL FUNCTION (CAR SUBSEQ))))]
                 (SEQ-DISPATCH RESULT (CL:DO ((INDEX 0 (CL:1+ INDEX))
                                              (SUBRESULT RESULT (CDR SUBRESULT)))
                                             ((EQL INDEX LENGTH))
                                           (RPLACA SUBRESULT (CL:FUNCALL FUNCTION (CL:AREF SEQUENCE INDEX))))
                         (CL:DO ((INDEX 0 (CL:1+ INDEX)))
                                ((EQL INDEX LENGTH))
                            (CL:SETF (CL:AREF RESULT INDEX)
                                   (CL:FUNCALL FUNCTION (CL:AREF SEQUENCE INDEX))))]
         RESULT))

(DEFMACRO %%MIN-SEQUENCE-LENGTH (SEQUENCES)
   `(CL:DO ([MIN-LENGTH (CL:LENGTH (CAR ,SEQUENCES]
            (SUBSEQ (CDR ,SEQUENCES)
                    (CDR SUBSEQ))
            NEXT-LENGTH)
           ((NULL SUBSEQ)
            MIN-LENGTH)
         (SETQ NEXT-LENGTH (CL:LENGTH (CAR SUBSEQ)))
         (CL:IF (< NEXT-LENGTH MIN-LENGTH)
                (SETQ MIN-LENGTH NEXT-LENGTH))))


(CL:DEFUN CL:MAP (RESULT-TYPE FUNCTION SEQUENCE &REST MORE-SEQUENCES)
   "FUNCTION must take as many arguments as there are sequences provided.  The result is a sequence such that
   element i is the result of applying FUNCTION to element i of each of the argument sequences."
   (CL:IF (NULL RESULT-TYPE)
       (CL:IF (NULL MORE-SEQUENCES)
           (%%MAP-FOR-EFFECT-SINGLE FUNCTION SEQUENCE)
           (%%MAP-FOR-EFFECT-MULTIPLE FUNCTION (CONS SEQUENCE MORE-SEQUENCES)))
       (CL:IF (NULL MORE-SEQUENCES)
           (%%MAP-FOR-RESULT-SINGLE RESULT-TYPE FUNCTION SEQUENCE)
           (%%MAP-FOR-RESULT-MULTIPLE RESULT-TYPE FUNCTION (CONS SEQUENCE MORE-SEQUENCES)))))

;; For compatibility with old optimizers


(CL:DEFUN %%MAP-SINGLE-FOR-EFFECT (FUNCTION SEQUENCE)
   (%%MAP-FOR-EFFECT-SINGLE FUNCTION SEQUENCE))


(CL:DEFUN %%MAP-SINGLE-TO-LIST (FUNCTION SEQUENCE)
   (%%MAP-FOR-RESULT-SINGLE 'LIST FUNCTION SEQUENCE))


(CL:DEFUN %%MAP-SINGLE-TO-SIMPLE (RESULT-TYPE FUNCTION SEQUENCE)
   (%%MAP-FOR-RESULT-SINGLE RESULT-TYPE FUNCTION SEQUENCE))


(CL:DEFUN %%MAP-TO-LIST (FUNCTION SEQUENCE &REST MORE-SEQUENCES)
   (CL:IF (NULL MORE-SEQUENCES)
       (%%MAP-FOR-RESULT-SINGLE 'LIST FUNCTION SEQUENCE)
       (%%MAP-FOR-RESULT-MULTIPLE 'LIST FUNCTION (CONS SEQUENCE MORE-SEQUENCES))))


(CL:DEFUN %%MAP-TO-SIMPLE (RESULT-TYPE FUNCTION SEQUENCE &REST MORE-SEQUENCES)
   (CL:IF (NULL MORE-SEQUENCES)
       (%%MAP-FOR-RESULT-SINGLE RESULT-TYPE FUNCTION SEQUENCE)
       (%%MAP-FOR-RESULT-MULTIPLE RESULT-TYPE FUNCTION (CONS SEQUENCE MORE-SEQUENCES))))


(DEFOPTIMIZER CL:MAP (RESULT-TYPE FUNCTION FIRST-SEQUNCE &REST MORE-SEQUENCES)
                     (CL:IF (AND (NULL MORE-SEQUENCES)
                                 (CL:CONSTANTP RESULT-TYPE))
                         (CL:IF (NULL (EVAL RESULT-TYPE))
                             `(%%MAP-FOR-EFFECT-SINGLE ,FUNCTION ,FIRST-SEQUNCE)
                             `(%%MAP-FOR-RESULT-SINGLE ,RESULT-TYPE ,FUNCTION ,FIRST-SEQUNCE))
                        'COMPILER:PASS))
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(CL:DEFUN %%SOME-MULTIPLE (PREDICATE SEQUENCES)
   [LET [(MIN-LENGTH (%%MIN-SEQUENCE-LENGTH SEQUENCES))
         (ELT-SLICE (CL:MAKE-LIST (CL:LENGTH SEQUENCES]
        (CL:DO ((INDEX 0 (CL:1+ INDEX))
                PREDICATE-RESULT)
               ((EQL INDEX MIN-LENGTH))
            (SETQ PREDICATE-RESULT (CL:APPLY PREDICATE (%%FILL-SLICE INDEX ELT-SLICE SEQUENCES)))
            (CL:IF PREDICATE-RESULT (RETURN PREDICATE-RESULT)))])


(CL:DEFUN %%SOME-SINGLE (PREDICATE SEQUENCE)
   [LET ((LENGTH (CL:LENGTH SEQUENCE)))
        (SEQ-DISPATCH SEQUENCE (FORWARD-LIST-LOOP SEQUENCE 0 LENGTH (INDEX CURRENT PREDICATE-RESULT)
                                       NIL
                                       (SETQ PREDICATE-RESULT (CL:FUNCALL PREDICATE CURRENT))
                                       (CL:IF PREDICATE-RESULT (RETURN PREDICATE-RESULT)))
                (FORWARD-VECTOR-LOOP SEQUENCE 0 LENGTH (INDEX CURRENT PREDICATE-RESULT)
                       NIL
                       (SETQ PREDICATE-RESULT (CL:FUNCALL PREDICATE CURRENT))
                       (CL:IF PREDICATE-RESULT (RETURN PREDICATE-RESULT])


(CL:DEFUN %%EVERY-MULTIPLE (PREDICATE SEQUENCES)
   [LET [(MIN-LENGTH (%%MIN-SEQUENCE-LENGTH SEQUENCES))
         (ELT-SLICE (CL:MAKE-LIST (CL:LENGTH SEQUENCES]
        (CL:DOTIMES (INDEX MIN-LENGTH T)
            (CL:IF (NULL (CL:APPLY PREDICATE (%%FILL-SLICE INDEX ELT-SLICE SEQUENCES)))
                   (RETURN NIL)))])


(CL:DEFUN %%EVERY-SINGLE (PREDICATE FIRST-SEQUENCE)
   [SEQ-DISPATCH FIRST-SEQUENCE (CL:DOLIST (ELT FIRST-SEQUENCE T)
                                       (CL:IF (NULL (CL:FUNCALL PREDICATE ELT))
                                              (RETURN NIL)))
          (CL:DOTIMES (INDEX (VECTOR-LENGTH FIRST-SEQUENCE)
                             T)
              (CL:IF (NULL (CL:FUNCALL PREDICATE (CL:AREF FIRST-SEQUENCE INDEX)))
                     (RETURN NIL)))])


(CL:DEFUN %%NOTANY-MULTIPLE (PREDICATE SEQUENCES)
   [LET [(MIN-LENGTH (%%MIN-SEQUENCE-LENGTH SEQUENCES))
         (ELT-SLICE (CL:MAKE-LIST (CL:LENGTH SEQUENCES]
        (CL:DOTIMES (INDEX MIN-LENGTH T)
            (CL:IF (CL:APPLY PREDICATE (%%FILL-SLICE INDEX ELT-SLICE SEQUENCES))
                   (RETURN NIL)))])


(CL:DEFUN %%NOTANY-SINGLE (PREDICATE FIRST-SEQUENCE)
   [SEQ-DISPATCH FIRST-SEQUENCE (CL:DOLIST (ELT FIRST-SEQUENCE T)
                                       (CL:IF (CL:FUNCALL PREDICATE ELT)
                                              (RETURN NIL)))
          (CL:DOTIMES (I (VECTOR-LENGTH FIRST-SEQUENCE)
                         T)
              (CL:IF (CL:FUNCALL PREDICATE (CL:AREF FIRST-SEQUENCE I))
                     (RETURN NIL)))])


(CL:DEFUN %%NOTEVERY-MULTIPLE (PREDICATE SEQUENCES)
   [LET [(MIN-LENGTH (%%MIN-SEQUENCE-LENGTH SEQUENCES))
         (ELT-SLICE (CL:MAKE-LIST (CL:LENGTH SEQUENCES]
        (CL:DOTIMES (INDEX MIN-LENGTH)
            (CL:IF (NULL (CL:APPLY PREDICATE (%%FILL-SLICE INDEX ELT-SLICE SEQUENCES)))
                   (RETURN T)))])


(CL:DEFUN %%NOTEVERY-SINGLE (PREDICATE FIRST-SEQUENCE)
   [SEQ-DISPATCH FIRST-SEQUENCE (CL:DOLIST (ELT FIRST-SEQUENCE)
                                       (CL:IF (NULL (CL:FUNCALL PREDICATE ELT))
                                              (RETURN T)))
          (CL:DOTIMES (I (VECTOR-LENGTH FIRST-SEQUENCE))
              (CL:IF (NULL (CL:FUNCALL PREDICATE (CL:AREF FIRST-SEQUENCE I)))
                     (RETURN T)))])


(CL:DEFUN CL:SOME (PREDICATE FIRST-SEQUENCE &REST MORE-SEQUENCES)
   "PREDICATE is applied to the elements with index 0 of the sequences, then possibly to those with index 1, and
   so on.  SOME returns the first non-() value encountered, or () if the end of a sequence is reached."
   (CL:IF (NULL MORE-SEQUENCES)
       (%%SOME-SINGLE PREDICATE FIRST-SEQUENCE)
       (%%SOME-MULTIPLE PREDICATE (CONS FIRST-SEQUENCE MORE-SEQUENCES))))


(CL:DEFUN CL:EVERY (PREDICATE FIRST-SEQUENCE &REST MORE-SEQUENCES)
   "PREDICATE is applied to the elements with index 0 of the sequences, then possibly to those with index 1, and
   so on.  EVERY returns () as soon as any invocation of PREDICATE returns (), or T if every invocation is
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   non-()."
   (CL:IF (NULL MORE-SEQUENCES)
       (%%EVERY-SINGLE PREDICATE FIRST-SEQUENCE)
       (%%EVERY-MULTIPLE PREDICATE (CONS FIRST-SEQUENCE MORE-SEQUENCES))))


(CL:DEFUN CL:NOTANY (PREDICATE FIRST-SEQUENCE &REST MORE-SEQUENCES)
   "PREDICATE is applied to the elements with index 0 of the sequences, then possibly to those with index 1, and
   so on.  NOTANY returns () as soon as any invocation of PREDICATE returns a non-() value, or T if the end of a
   sequence is reached."
   (CL:IF (NULL MORE-SEQUENCES)
       (%%NOTANY-SINGLE PREDICATE FIRST-SEQUENCE)
       (%%NOTANY-MULTIPLE PREDICATE (CONS FIRST-SEQUENCE MORE-SEQUENCES))))


(CL:DEFUN CL:NOTEVERY (PREDICATE FIRST-SEQUENCE &REST MORE-SEQUENCES)
   "PREDICATE is applied to the elements with index 0 of the sequences, then possibly to those with index 1, and
   so on.  NOTEVERY returns T as soon as any invocation of PREDICATE returns (), or () if every invocation is
   non-()."
   (CL:IF (NULL MORE-SEQUENCES)
       (%%NOTEVERY-SINGLE PREDICATE FIRST-SEQUENCE)
       (%%NOTEVERY-MULTIPLE PREDICATE (CONS FIRST-SEQUENCE MORE-SEQUENCES))))

;; For compatibility with old optimizers

(MOVD '%%SOME-SINGLE '%%SINGLE-SOME)

(MOVD '%%EVERY-SINGLE '%%SINGLE-EVERY)

(MOVD '%%NOTEVERY-SINGLE '%%SINGLE-NOTEVERY)

(MOVD '%%NOTANY-SINGLE '%%SINGLE-NOTANY)


(DEFOPTIMIZER CL:SOME (PREDICATE SEQUENCE &REST MORE-SEQUENCES)
                      (COND
                         [(NULL MORE-SEQUENCES)
                          `(%%SOME-SINGLE ,PREDICATE ,SEQUENCE]
                         (T 'COMPILER:PASS)))


(DEFOPTIMIZER CL:EVERY (PREDICATE SEQUENCE &REST MORE-SEQUENCES)
                       (COND
                          [(NULL MORE-SEQUENCES)
                           `(%%EVERY-SINGLE ,PREDICATE ,SEQUENCE]
                          (T 'COMPILER:PASS)))


(DEFOPTIMIZER CL:NOTANY (PREDICATE SEQUENCE &REST MORE-SEQUENCES)
                        (COND
                           [(NULL MORE-SEQUENCES)
                            `(%%NOTANY-SINGLE ,PREDICATE ,SEQUENCE]
                           (T 'COMPILER:PASS)))


(DEFOPTIMIZER CL:NOTEVERY (PREDICATE SEQUENCE &REST MORE-SEQUENCES)
                          (COND
                             [(NULL MORE-SEQUENCES)
                              `(%%NOTEVERY-SINGLE ,PREDICATE ,SEQUENCE]
                             (T 'COMPILER:PASS)))


(CL:DEFUN REDUCE-FROM-END (FUNCTION SEQUENCE START END INITIAL-VALUE)
   "Backward reduction"
   [SEQ-DISPATCH SEQUENCE (BACKWARD-LIST-LOOP SEQUENCE START END (INDEX CURRENT (ACCUMULATOR INITIAL-VALUE))
                                ACCUMULATOR
                                (SETQ ACCUMULATOR (CL:FUNCALL FUNCTION CURRENT ACCUMULATOR)))
          (BACKWARD-VECTOR-LOOP SEQUENCE START END (INDEX CURRENT (ACCUMULATOR INITIAL-VALUE))
                 ACCUMULATOR
                 (SETQ ACCUMULATOR (CL:FUNCALL FUNCTION CURRENT ACCUMULATOR])


(CL:DEFUN REDUCE-FROM-START (FUNCTION SEQUENCE START END INITIAL-VALUE)
   [SEQ-DISPATCH SEQUENCE (FORWARD-LIST-LOOP SEQUENCE START END (INDEX CURRENT (ACCUMULATOR INITIAL-VALUE))
                                ACCUMULATOR
                                (SETQ ACCUMULATOR (CL:FUNCALL FUNCTION ACCUMULATOR CURRENT)))
          (FORWARD-VECTOR-LOOP SEQUENCE START END (INDEX CURRENT (ACCUMULATOR INITIAL-VALUE))
                 ACCUMULATOR
                 (SETQ ACCUMULATOR (CL:FUNCALL FUNCTION ACCUMULATOR CURRENT])


(CL:DEFUN CL:REDUCE (FUNCTION SEQUENCE &KEY (START 0)
                              END FROM-END (INITIAL-VALUE NIL INITIAL-VALUE-P))
   [LET ((LENGTH (CL:LENGTH SEQUENCE)))
        (CL:IF (NULL END)
               (SETQ END LENGTH))
        (CHECK-SUBSEQ SEQUENCE START END LENGTH)
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        (CL:IF INITIAL-VALUE-P
            (CL:IF FROM-END
                (REDUCE-FROM-END FUNCTION SEQUENCE START END INITIAL-VALUE)
                (REDUCE-FROM-START FUNCTION SEQUENCE START END INITIAL-VALUE))
            (CASE (- END START)
                (0 (CL:FUNCALL FUNCTION))
                (1 (CL:ELT SEQUENCE START))
                (T (CL:IF FROM-END
                       (REDUCE-FROM-END FUNCTION SEQUENCE START (CL:1- END)
                              (CL:ELT SEQUENCE (CL:1- END)))
                       (REDUCE-FROM-START FUNCTION SEQUENCE (CL:1+ START)
                              END
                              (CL:ELT SEQUENCE START))))))])

(PUTPROPS CMLSEQMAPPERS FILETYPE CL:COMPILE-FILE)

(DECLARE%: DONTEVAL@LOAD DONTCOPY DOEVAL@COMPILE

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(LOCALVARS . T)
)
)

(PUTPROPS CMLSEQMAPPERS COPYRIGHT ("Venue & Xerox Corporation" 1986 1987 1990))
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FUNCTION INDEX

OPTIMIZER INDEX

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