

File created: 16-May-90 15:10:30 {DSK}<usr>local>lde>lispcore>sources>COROUTINE.;2

changes to: (VARS COROUTINECOMS)

previous date: 4-Dec-86 05:03:32 {DSK}<usr>local>lde>lispcore>sources>COROUTINE.;1

Read Table: XCL

Package: INTERLISP

Format: XCCS

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```
(RPAQQ COROUTINECOMS
  ((I.S.OPRS OUTOF)
   (OPTIMIZERS COROUTINE GENERATOR POSSIBILITIES TRYNEXT)
   (PROP (MACRO INFO)
          COROUTINE GENERATOR TRYNEXT POSSIBILITIES)
   (DECLARE\ : DONTVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILEVAR (ADDVARS (NLAMA)
                                                                           (NLAML TRYNEXT POSSIBILITIES
                                                                           GENERATOR COROUTINE)
                                                                           (LAMA AU-REVOIR ADIEU)))

   (FNS COROUTINE GENERATOR GENERATE PRODUCE GENERATEFN)
   (FNS ADIEU AU-REVOIR CLEANPOSTLST NOTE POSSIBILITIES TRYNEXT TRYNEXT1 POSSIBILITYFN)
   (ADDVARS (SYSSPECVARS COMVAR## POSSLIST##))
   (PROP FILETYPE COROUTINE)))

(DECLARE\ : EVAL@COMPILE

(I.S.OPR 'OUTOF NIL ' (SUBST (GENSYM
                              'GENVAR
                              ' (BIND GENVAR _ (GENERATOR BODY) EACHTIME (COND
                                                                           ((EQ (SETQ I.V. (GENERATE GENVAR))
                                                                           GENVAR)
                                                                           (GO $$OUT)))

                              FINALLY (RELSTK (CDR GENVAR))))))

T)
)

(DEFOPTIMIZER COROUTINE (P1 P2 F1 F2)
  `(PROGN (OR (STACKP ,P1)
              (SETQ ,P1 (STKNTH 0 T)))
    (OR (STACKP ,P2)
        (SETQ ,P2 (STKNTH 0 T)))
    ((LAMBDA (..MACROX.)
      (COND
        ((EQ ..MACROX. ,P2)
         ,P2)
        (T (RESUME ,P2 ..MACROX. ,P2)
            ,F1
            (RETTO ,P1 ,F2 T))))
      (STKNTH -1))))

(DEFOPTIMIZER GENERATOR (FORM COMVAR)
  `(GENERATEFN (FUNCTION (LAMBDA NIL
                          ,FORM))
    ,COMVAR))

(DEFOPTIMIZER POSSIBILITIES (FORM)
  `(POSSIBILITYFN (FUNCTION (LAMBDA NIL
                              ,FORM))))

(DEFOPTIMIZER TRYNEXT (PLST NOMORE MSG)
  `(COND
    ((SETQ ,PLST (TRYNEXT1 ,PLST ,MSG))
     (PROG1 (CAR ,PLST)
      (SETQ ,PLST (CDR ,PLST))))
    (T (SETQ ,PLST (CDR ,PLST))
      ,NOMORE)))

(PUTPROPS COROUTINE MACRO ((P1 P2 F1 F2)
  (PROGN (OR (STACKP P1)
            (SETQ P1 (STKNTH 0 T)))
    (OR (STACKP P2)
        (SETQ P2 (STKNTH 0 T)))
    ((LAMBDA (..MACROX.)
      (COND
        ((EQ ..MACROX. P2)
         P2)
        (T (RESUME P2 ..MACROX. P2)
            F1
            (RETTO P1 F2 T))))
      (STKNTH -1))))
```

```
(PUTPROPS GENERATOR MACRO ((FORM COMVAR)
  (GENERATEFN (FUNCTION (LAMBDA NIL FORM))
    COMVAR)))

(PUTPROPS TRYNEXT MACRO ((PLST NOMORE MSG)
  (COND
    ((SETQ PLST (TRYNEXT1 PLST MSG))
      (PROG1 (CAR PLST)
        (SETQ PLST (CDR PLST)))))
    (T (SETQ PLST (CDR PLST))
      NOMORE))))

(PUTPROPS POSSIBILITIES MACRO ((FORM)
  (POSSIBILITYFN (FUNCTION (LAMBDA NIL FORM)))))
```

```
(PUTPROPS COROUTINE INFO EVAL)
```

```
(PUTPROPS GENERATOR INFO EVAL)
```

```
(PUTPROPS TRYNEXT INFO EVAL)
```

```
(PUTPROPS POSSIBILITIES INFO EVAL)
```

```
(DECLARE\ : DONTVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILEVAR)
```

```
(ADDTOVAR NLAMA )
```

```
(ADDTOVAR NLAML TRYNEXT POSSIBILITIES GENERATOR COROUTINE)
```

```
(ADDTOVAR LAMA AU-REVOIR ADIEU)
)
```

```
(DEFINEQ
```

```
(COROUTINE
```

```
(NLAMBDA (CALLPTR## COROUTPTR## COROUTFORM## ENDFORM##) (*|wt:| 17-APR-76 19 48)
```

```
(* CALLPTR## |and| COROUTPTR## ARE |the| |names| |of| |communication| |variables| |in| |the| |function| |calling|
COROUTINE. |They| |will| |be| |set| |to| |stkptrs| |if| |they| ARE |not| |already| |ones|.
COROUTFORM## |is| |the| |form| |which| |starts| |the| COROUTINE.
ENDFORM## |is| |evaluated| |in| |the| |context| |of| |the| |caller| |when| COROUTFORM## |returns|.)
```

```
(SETQ CALLPTR## (SET CALLPTR## (OR (STACKP (EVALV CALLPTR##))
  (STKNTH 0 T))))
(SETQ COROUTPTR## (SET COROUTPTR## (OR (STACKP (EVALV COROUTPTR##))
  (STKNTH 0 T))))
(RESUME COROUTPTR## (STKNTH -1 'COROUTINE)
  COROUTPTR##)
(EVAL COROUTFORM##)
(RETTO CALLPTR## (ENVEVAL ENDFORM## (STKNTH -1 'COROUTINE)
  NIL T)
  T)))
```

```
(GENERATOR
```

```
(NLAMBDA (FORM## COMVAR##)
  (COND
    (COMVAR## (SETQ COMVAR## (EVAL COMVAR##))))
  (COND
    ((NLISTP COMVAR##)
      (SETQ COMVAR## (CONS (STKNTH 0 T)
        (STKNTH 0 T))))
    (T (COND
      ((NOT (STACKP (CAR COMVAR##)))
        (FRPLACA COMVAR## (STKNTH 0 T))))
      (COND
        ((NOT (STACKP (CDR COMVAR##)))
          (FRPLACD COMVAR## (STKNTH 0 T))))))
    (RESUME (CDR COMVAR##)
      (STKNTH -1 'GENERATOR (CAR COMVAR##))
      COMVAR##)
    (EVAL FORM##)
    (RETTO (CAR COMVAR##)
      COMVAR## T))))
```

```
(GENERATE
```

```
(LAMBDA (HANDLE VAL)
  (RESUME (CAR HANDLE)
    (CDR HANDLE)
    VAL)))
```

```
(PRODUCE
```

```
(LAMBDA (VAL)
  (RESUME (CDR COMVAR##)
```

```
(CAR COMVAR##)
VAL)) )
```

**(GENERATEFN**

```
(LAMBDA (FN COMVAR##)
  (DECLARE (SPECVARS COMVAR##))
  (COND
    ((NLISTP COMVAR##)
      (SETQ COMVAR## (CONS (STKNTH 0 T)
                           (STKNTH 0 T))))
    (T (COND
         ((NOT (STACKP (CAR COMVAR##)))
          (FRPLACA COMVAR## (STKNTH 0 T)))
         (COND
          ((NOT (STACKP (CDR COMVAR##)))
           (FRPLACD COMVAR## (STKNTH 0 T))))))
      (RESUME (CDR COMVAR##)
               (STKNTH -1 'GENERATEFN (CAR COMVAR##)
                           COMVAR##))
      (APPLY* FN)
      (RETTO (CAR COMVAR##)
              COMVAR## T)))
```

(\* |Imm:| "11-FEB-77 15:51:34")

)

(DEFINEQ

**(ADIEU**

```
(LAMBDA VAL##
  (COND
    ((NOT (ZEROP VAL##))
      (NOTE (ARG VAL## 1))))
  (RETTO (CAR COMVAR##)
          (PROG1 POSSLIST## (SETQ POSSLIST## NIL)
            T)))
```

**(AU-REVOIR**

```
(LAMBDA VAL##
  (COND
    ((NOT (ZEROP VAL##))
      (NOTE (ARG VAL## 1))))
  (NOTE COMVAR##)
  (RESUME (CDR COMVAR##)
           (CAR COMVAR##)
           (PROG1 POSSLIST## (SETQ POSSLIST## NIL)))))
```

**(CLEANPOSLST**

```
(LAMBDA (PLST)
  (|for| X |in| PLST |do| (COND
    ((AND (LISTP X)
          (STACKP (CAR X)))
      (RELSTK (CAR X))
      (RELSTK (CDR X))))))
```

**(NOTE**

```
(LAMBDA (VAL LSTFLG)
  (SETQ POSSLIST## (NCONC POSSLIST## (COND
    (LSTFLG VAL)
    (T (LIST VAL))))))
```

**(POSSIBILITIES**

```
(NLAMBDA (FORM##)
  (PROG (COMVAR## POSSLIST##)
    (PRODUCE (LIST (SETQ COMVAR## (CONS (STKNTH -1 'POSSIBILITIES)
                                         (STKNTH 0 T))))
            (EVAL FORM##)
            (ADIEU))))
```

(\* DD: " 5-Oct-81 17:08")

**(TRYNEXT**

```
(NLAMBDA (PLST## ENDFORM## VAL##)
  (PROG (PL1##)
    (SET PLST## (CDR (SETQ PL1## (TRYNEXT1 (EVAL PLST##)
                                             (EVAL VAL##)))))
    (COND
      ((NULL PL1##)
        (RETEVAL 'TRYNEXT ENDFORM##))
      (T (RETURN (CAR PL1##))))))
```

**(TRYNEXT1**

```
(LAMBDA (PLST## MSG##)
```

```
(PROG (PL1##)
  LP (COND
    ((NULL PLST##)
      (RETURN NIL)))
    (SETQ PL1## (CAR PLST##))
    (COND
      ((OR (NLISTP PL1##)
        (NOT (STACKP (CAR PL1##))))
        (RETURN PLST##)))
      (SETQ PLST## (NCONC (RESUME (CAR PL1##)
        (CDR PL1##)
        MSG##)
        (CDR PLST##)))
    (GO LP))))
```

## (POSSIBILITYFN

```
(LAMBDA (FN COMVAR## POSSLIST##)
  (DECLARE (LOCALVARS FN)
    (SPECVARS COMVAR## POSSLIST##))
  (PRODUCE (LIST (SETQ COMVAR## (CONS (STKNTH -1 'POSSIBILITYFN)
    (STKNTH 0 T))))
    (APPLY* FN)
    (ADIEU)))
)

(ADDTOVAR SYSSPECVARS COMVAR## POSSLIST##)

(PUTPROPS COROUTINE FILETYPE CL:COMPILE-FILE)

(PUTPROPS COROUTINE COPYRIGHT ("Venue & Xerox Corporation" 1986 1990))
```

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