

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\ : DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILEVARS (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\ : DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVERS

(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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OUTOF1
