File created: 19-Feb-87 10:40:43 **{QV}<LFG>PARSER>NEXT>LAMBDATRAN.;2**

changes to: (FNS FNTYP1 LTDWIMUSERFN LTSTKNAME NARGS)

previous date: 19-Feb-87 09:56:18 {QV}<LFG>PARSER>NEXT>LAMBDATRAN.;1

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

```
(RPAQQ LAMBDATRANCOMS
       [(* Translation machinery for new LAMBDA words)
        (LOCALVARS . T)
        [DECLARE%: FIRST (P  (VIRGINFN 'ARGLIST T)
                            (MOVD? 'ARGLIST 'OLDARGLIST)
                            (VIRGINFN 'NARGS T)
                            (MOVD? 'NARGS 'OLDNARGS)
                            (VIRGINFN 'ARGTYPE T)
                            (MOVD? 'ARGTYPE 'OLDARGTYPE)
                            (MOVD? 'NILL 'LTDWIMUSERFN]
        (FNS ARGLIST ARGTYPE FNTYP1 LTDWIMUSERFN LTSTKNAME NARGS)
        (ADDVARS (DWIMUSERFORMS (LTDWIMUSERFN)))
        (PROP VARTYPE LAMBDATRANFNS)
        (ALISTS (LAMBDATRANFNS))
        (PROP MACRO LTSTKNAME)
        (P (PUTHASH 'LTSTKNAME '(NIL)
                  MSTEMPLATES))
        (P (RELINK 'WORLD))
        (DECLARE%: EVAL@COMPILE DONTCOPY (P (RESETSAVE DWIMIFYCOMPFLG T))
               (GLOBALVARS CLISPARRAY COMMENTFLG LAMBDASPLST LAMBDATRANFNS BOUNDPDUMMY))
        (DECLARE%: DONTCOPY (RECORDS LAMBDAWORD))
        (DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVARS (ADDVARS (NLAMA)
                                                                             (NLAML LTSTKNAME)
                                                                             (LAMA])
```

(* * Translation machinery for new LAMBDA words)

```
(DECLARE%: DOEVAL@COMPILE DONTCOPY

(LOCALVARS . T)
)

(DECLARE%: FIRST

(VIRGINFN 'ARGLIST T)

(MOVD? 'ARGLIST 'OLDARGLIST)

(VIRGINFN 'NARGS T)

(MOVD? 'NARGS 'OLDNARGS)

(VIRGINFN 'ARGTYPE T)

(MOVD? 'ARGTYPE 'OLDARGTYPE)

(MOVD? 'NILL 'LTDWIMUSERFN)
)

(DEFINEQ

(ARGLIST
  [LAMBDA (FN)                                                   (* rmk%: " 6-AUG-79 22:41")
    (PROG (TEMP (DEF (CGETD FN)))
          (DECLARE (LOCALVARS . T))
          (RETURN (if (OR (SUBRP DEF)
                          (NLISTP DEF)
                          (SELECTQ (CAR DEF)
                               ([LAMBDA NLAMBDA FUNARG]
                                    T)
                              NIL))
                      then (OLDARGLIST FN)
                    elseif (AND CLISPARRAY (SETQ TEMP (GETHASH DEF CLISPARRAY)))
                      then (ARGLIST TEMP)
                    elseif [AND [SETQ TEMP (fetch ARGLIST of (CDR (ASSOC (CAR DEF)
                                                                      LAMBDATRANFNS]
                               (NEQ T (SETQ TEMP (APPLY* TEMP DEF]
                      then TEMP
                    else (OLDARGLIST FN])
```

```
(ARGTYPE
  [LAMBDA (FN)                                                   (* rmk%: " 9-APR-78 12:55")
                                                                 (* Note%: We don’t have to worry about SUBR’s or CCODE
                                                                 here)

    (OR (OLDARGTYPE FN)
        (SELECTQ (FNTYP FN)
             (EXPR 0)
             (FEXPR 1)
             (EXPR* 2)
             (FEXPR* 3)
            NIL])

(FNTYP1
  [LAMBDA (X)                                                    (* rmk%: " 6-AUG-79 22:43")

          (* Called by FNTYP when it can’t interpret the CAR of a list definition.
          Doesn’t call dwimify, because it might not know what FAULTN really is.
          Therefore, examines the FNTYP field of the LAMBDATRAN entry)

    (PROG (TEMP)
          (RETURN (if (AND CLISPARRAY (SETQ TEMP (GETHASH X CLISPARRAY)))
                      then (FNTYP TEMP)
                    elseif (SETQ TEMP (CDR (ASSOC (CAR X)
                                                  LAMBDATRANFNS)))
                      then (SELECTQ (SETQ TEMP (fetch FNTYP of TEMP))
                                ((EXPR EXPR* FEXPR FEXPR*)
                                    TEMP)
                                (NIL 'EXPR)
                                (APPLY* TEMP X])

(LTDWIMUSERFN
  [LAMBDA NIL                                                    (* rmk%: " 6-AUG-79 22:49")
                                                                 (* NOTE%: dwimuserfn HAS to be compiled for proper action!!)
                                                                 (* LAMBDA-words can be added by making entries on
                                                                 LAMBDATRANFNS, e.g. (FOOLAMBDA FOOTRAN EXPR
                                                                 FOOARGLIST))
    (DECLARE (USEDFREE EXPR FAULTFN FAULTAPPLYFLG FAULTX FAULTARGS LAMBDASPLST LAMBDATRANFNS COMMENTFLG
                     CLISPCHANGE))
    (PROG (FORM TRAN TRANFN (EXPR EXPR)
                (FAULTFN FAULTFN))
          (DECLARE (SPECVARS FAULTFN EXPR))                      (* Rebind FAULTFN to guarantee function name instead of
                                                                 TYPE-IN)
          [SETQ FORM (if (LISTP FAULTX)
                         then (if (FMEMB (CAR FAULTX)
                                         LAMBDASPLST)
                                  then FAULTX
                                elseif (LITATOM (CAR FAULTX))
                                  then [SETQ EXPR (GETD (SETQ FAULTFN (CAR FAULTX]
                                else (LISTP (CAR FAULTX)))
                       elseif (AND FAULTAPPLYFLG (LITATOM FAULTX))
                         then (SETQ EXPR (GETD (SETQ FAULTFN FAULTX]
          (RETURN (if [SETQ TRANFN (fetch TRANFN of (CDR (ASSOC (CAR FORM)
                                                                LAMBDATRANFNS]
                      then (SETQ CLISPCHANGE T)                  (* Tell dwim not to try again if the translation doesn’t make it)
                           (if (LISTP (SETQ TRAN (APPLY* TRANFN FORM)))
                               then (if [OR (EQ FORM (GETD FAULTFN))
                                            (EQ FORM (GETP FAULTFN 'EXPR]
                                        then                     (* Insert the form that will establish the right function name on
                                                                 the stack)
                                             (for X TEMP on (CDR (LISTP (CDR TRAN)))
                                                unless (SELECTQ [SETQ TEMP (CAR (LISTP (CAR X]
                                                           ((DECLARE CLISP%:)
                                                                T)
                                                           (EQ TEMP COMMENTFLG))
                                                do (ATTACH (LIST 'LTSTKNAME FAULTFN)
                                                          X)
                                                   (RETURN)))
                                    (CLISPTRAN FORM TRAN)
                                    (if FAULTAPPLYFLG
                                        then (RETAPPLY 'FAULTAPPLY TRAN FAULTARGS)
                                      else (SELECTQ (CAR TRAN)
                                               ([LAMBDA NLAMBDA]
                                                   (if (EQ FORM (CAR FAULTX))
                                                       then (DWIMIFY0? (CDR FAULTX)
                                                                   FAULTX NIL NIL NIL FAULTFN))
                                                                 (* Dwimify the arguments of an open LAMBDA)
                                                   FAULTX)
                                               TRAN])

(LTSTKNAME
  [NLAMBDA (NAME)                                                (* rmk%: " 6-JUN-79 10:54")

          (* Smashes the correct stack-name on the frame for the LAMBDA-translation.
          The call goes away at compile. If BOUNDPDUMMY is bound to a stackframe, avoids allocation on each call.)
    (DECLARE (USEDFREE BOUNDPDUMMY))
    (PROG (POS)
          (SETSTKNAME (SETQ POS (REALSTKNTH -1 'LTSTKNAME T BOUNDPDUMMY))
                 NAME)
          (RELSTK POS])

(NARGS
  [LAMBDA (X)                                                        (* rmk%: "29-APR-78 14:10")
    (OR (OLDNARGS X)
        (AND (NLSETQ (SETQ X (ARGLIST X)))
             (if (NULL X)
                 then 0
               elseif (LISTP X)
                 then (LENGTH X)
               else 1])
)

(ADDTOVAR DWIMUSERFORMS (LTDWIMUSERFN))

(PUTPROPS LAMBDATRANFNS VARTYPE ALIST)

(ADDTOVAR LAMBDATRANFNS )

(PUTPROPS LTSTKNAME MACRO (X (CONS COMMENTFLG X)))

(PUTHASH 'LTSTKNAME '(NIL)
       MSTEMPLATES)

(RELINK 'WORLD)

(DECLARE%: EVAL@COMPILE DONTCOPY

(RESETSAVE DWIMIFYCOMPFLG T)

(DECLARE%: DOEVAL@COMPILE DONTCOPY

(GLOBALVARS CLISPARRAY COMMENTFLG LAMBDASPLST LAMBDATRANFNS BOUNDPDUMMY)
)
)

(DECLARE%: DONTCOPY

(DECLARE%: EVAL@COMPILE

(RECORD LAMBDAWORD (TRANFN FNTYP ARGLIST))
)
)

(DECLARE%: DONTEVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVARS

(ADDTOVAR NLAMA )

(ADDTOVAR NLAML LTSTKNAME)

(ADDTOVAR LAMA )
)

(PUTPROPS LAMBDATRAN COPYRIGHT ("Xerox Corporation" 1984 1987))
```

{MEDLEY}<lispusers>LAMBDATRAN.;1 28-Jun-2024 18:34:03

-- Listed on 30-Jun-2024 13:14:21 --

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