

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

changes to: (FNS FNTYP1 LTDWIMUSERFN LTSTKNAME NARGS)

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

Read Table: INTERLISP

Package: INTERLISP

Format: XCCS

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(RPAQQ **LAMB DATRANCOMS**

```
[(* 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? 'NIL 'LTDWIMUSERFN)
 (FNS ARGLIST ARGTYPE FNTYP1 LTDWIMUSERFN LTSTKNAME NARGS)
 (ADDVARS (DWIMUSERFORMS (LTDWIMUSERFN)))
 (PROP VARTYPE LAMB DATRANFNS)
 (ALISTS (LAMB DATRANFNS))
 (PROP MACRO LTSTKNAME)
 (P (PUTHASH 'LTSTKNAME ' (NIL)
 MTEMPLATES))
 (P (RELINK 'WORLD))
 (DECLARE%: EVAL@COMPILE DONTCOPY (P (RESETSAVE DWIMIFYCOMPFLG T))
 (GLOBALVARS CLISPARRAY COMMENTFLG LAMB DASPST LAMB DATRANFNS BOUNDPDUMMY))
 (DECLARE%: DONTCOPY (RECORDS LAMB DAWORD))
 (DECLARE%: DONTVAL@LOAD DOEVAL@COMPILE DONTCOPY COMPILERVERS (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? 'NIL '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)
 LAMB DATRANFNS])
 (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 LAMB DATRAN entry)

(PROG (TEMP)
(RETURN (if (AND CLISPARRAY (SETQ TEMP (GETHASH X CLISPARRAY)))
then (FNTYP TEMP)
elseif (SETQ TEMP (CDR (ASSOC (CAR X)
LAMB DATRANFNS)))
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
LAMB DATRANFNS, e.g. (FOOLAMBDA FOOTRAN EXPR
FOOARGLIST))

(DECLARE (USEDFREE EXPR FAULTFN FAULTAPPLYFLG FAULTX FAULTARGS LAMB DASPLST LAMB DATRANFNS 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)
LAMB DASPLST)
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)
LAMB DATRANFNS]
(RETURN (if [SETQ TRANFN (fetch TRANFN of (CDR (ASSOC (CAR FORM)
LAMB DATRANFNS]
then (SETQ CLISPCHANGE T)
(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

(* rmk%: "29-APR-78 14:10")

```
[LAMBDA (X)
  (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 LAMB DATRANFNS VARTYPE ALIST)
(ADDTOVAR LAMB DATRANFNS )
(PUTPROPS LTSTKNAME MACRO (X (CONS COMMENTFLG X)))
(PUTHASH 'LTSTKNAME ' (NIL)
  MTEMPLATES)
(RELINK 'WORLD)
(DECLARE%: EVAL@COMPILE DONTCOPY)
(RESETSAVE DWIMIFYCOMPFLG T)
(DECLARE%: DOEVAL@COMPILE DONTCOPY)
(GLOBALVARS CLISPARRAY COMMENTFLG LAMB DASPLST LAMB DATRANFNS 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 LAMB DATRAN COPYRIGHT ("Xerox Corporation" 1984 1987))
```

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