File created: 2-Feb-94 14:15:09 **{PELE:MV:ENVOS}<LISPCORE>SOURCES>WRAPPERS.;6**

changes to: (IL:FUNCTIONS NAMED-FUNCTION-WRAPPER-INFO)

previous date: 10-Mar-93 13:56:58 {PELE:MV:ENVOS}<LISPCORE>SOURCES>WRAPPERS.;5

Read Table: XCL

Package: SYSTEM

Format: XCCS


```
(IL:RPAQQ IL:WRAPPERSCOMS
          ((IL:FUNCTIONS COMPILED-FUNCTION-ARGLIST COMPILED-FUNCTION-DEBUGGING-INFO COMPILED-FUNCTION-INTERLISP?
                 FUNCTION-WRAPPER-INFO CLEAN-UP-CL-ARGLIST GET-STORED-ARGLIST NAMED-FUNCTION-WRAPPER-INFO
                 PARSE-CL-ARGLIST)
           (IL:FUNCTIONS HAS-CALLS CHANGE-CALLS CHANGE-CALLS-IN-CCODE CHANGE-CALLS-IN-LAMBDA ADD-CHANGED-CALL
                 %WITH-CHANGED-CALLS RESTORE-CALLS)
           (IL:FNS IL:VIRGINFN CONSTRUCT-MIDDLE-MAN)
           (IL:PROP IL:PROPTYPE IL:NAMESCHANGED)
           ;; Arrange for the proper compiler and package/readtable.
           (IL:PROP (IL:FILETYPE IL:MAKEFILE-ENVIRONMENT)
                 IL:WRAPPERS)
           (IL:DECLARE\: IL:DOEVAL@COMPILE IL:DONTCOPY (IL:FILES (IL:LOADCOMP)
                                                                 IL:ACODE))
           (IL:DECLARE\: IL:DONTEVAL@LOAD IL:DOEVAL@COMPILE IL:DONTCOPY IL:COMPILERVARS (IL:ADDVARS (IL:NLAMA)
                                                                                                 (IL:NLAML)
                                                                                                 (IL:LAMA)))))


(DEFUN COMPILED-FUNCTION-ARGLIST (FN &KEY INTERLISP?)
   (LET ((DEBUGGING-INFO (COMPILED-FUNCTION-DEBUGGING-INFO FN)))
        (COND
           (DEBUGGING-INFO                                          ; Oh, good.  Its argument list is easy to get.
                  (IF INTERLISP?
                      (IL:|for| X IL:|in| (CAR DEBUGGING-INFO) IL:|join| (COND
                                                                            ((STRINGP X)
                                                                             (LIST (IL:MKATOM X)))
                                                                            ((EQ X '&OPTIONAL)
                                                                             NIL)
                                                                            (T (LIST X))))
                      (COPY-TREE (CAR DEBUGGING-INFO))))
           (T                                                       ; Rats.  We have to go to some trouble.
              (IL:\\CCODEARGLIST (IL:|fetch| (IL:COMPILED-CLOSURE IL:FNHEADER) IL:|of| FN))))))


(DEFUN COMPILED-FUNCTION-DEBUGGING-INFO (FN)

;;; Given a compiled-function object, extract the debugging-info list from it.  If it's ByteCompiled, it won't have such a list and we should return NIL.  We
;;; can tell if there is such a list by the length allowed for the local name table.  If there's a multiple of a quadword there, it's a name table.  Otherwise, it
;;; should be exactly one cell long and contain a pointer to the debugging-info list.

   (LET* ((FNHEADER (IL:|fetch| (IL:COMPILED-CLOSURE IL:FNHEADER) IL:|of| FN))
          (START-PC (IF (IL:|fetch| (IL:FNHEADER IL:NATIVE) IL:|of| FNHEADER)
                        (- (IL:|fetch| (IL:FNHEADER IL:STARTPC) IL:|of| FNHEADER)
                           4)
                        (IL:|fetch| (IL:FNHEADER IL:STARTPC) IL:|of| FNHEADER)))
          (NAME-TABLE-WORDS (LET ((SIZE (IL:|fetch| (IL:FNHEADER IL:NTSIZE) IL:|of| FNHEADER)))
                                 (IF (ZEROP SIZE)
                                     IL:WORDSPERQUAD
                                     (* SIZE 2))))
          (PAST-NAME-TABLE-IN-WORDS (+ (IL:|fetch| (IL:FNHEADER IL:OVERHEADWORDS) IL:|of| FN)
                                       NAME-TABLE-WORDS)))
         (AND (= (- START-PC (* IL:BYTESPERWORD PAST-NAME-TABLE-IN-WORDS))
                 IL:BYTESPERCELL)
              ;; It's got a debugging-info list.
              (IL:\\GETBASEPTR FNHEADER PAST-NAME-TABLE-IN-WORDS))))


(DEFUN COMPILED-FUNCTION-INTERLISP? (FN)

;;; Given a compiled-function, return true if and only if the function is an Interlisp one.

   (LET ((DEBUGGING-INFO (COMPILED-FUNCTION-DEBUGGING-INFO FN)))
        (OR (MEMBER (IL:ARGTYPE FN)
                    '(1 3))                                         ; NLambda's are always Interlisp
            (NULL DEBUGGING-INFO)                                   ; ByteCompiled code is always Interlisp.
            (GETF (CDR DEBUGGING-INFO)
                  :INTERLISP)                                       ; PavCompiled Interlisp code should have this marker in it.

            )))


(DEFUN FUNCTION-WRAPPER-INFO (WRAPPED-FN FN-TO-CALL)
```

```
   (LET* ((NAME (AND (SYMBOLP WRAPPED-FN)
                     WRAPPED-FN))
          (DEFN (IF NAME
                    (IL:GETD NAME)
                    WRAPPED-FN)))
         (NAMED-FUNCTION-WRAPPER-INFO NAME DEFN FN-TO-CALL)))


(DEFUN CLEAN-UP-CL-ARGLIST (ARG-LIST)
   (IL:|bind| (STATE IL:_ :REQUIRED) IL:|for| PARAM IL:|in| ARG-LIST
      IL:|collect| (COND
                   ((MEMBER PARAM '(&OPTIONAL &REST &KEY &ALLOW-OTHER-KEYS))
                    (SETQ STATE PARAM)
                    PARAM)
                   ((CONSP PARAM)
                    (CASE STATE
                        (&OPTIONAL (FIRST PARAM))
                        (&KEY (IF (CONSP (FIRST PARAM))
                                  (FIRST (FIRST PARAM))
                                  (INTERN (STRING (FIRST PARAM))
                                          "KEYWORD")))
                        (OTHERWISE
                           (WARN "Illegal form in argument-list: ~S" PARAM)
                           'USER::%LOSE%)))
                   ((EQ STATE '&KEY)
                    (INTERN (STRING PARAM)
                            "KEYWORD"))
                   (T PARAM))))

(DEFUN GET-STORED-ARGLIST (NAME)

;;; The IL:ARGNAMES property is either the argument list itself or a list of the form (NIL arglist-1 . arglist-2) where arglist-1 is semantically void and
;;; arglist-2 is interesting.  Since NIL is not a legal argument list, we can tell the cases apart.  Ugh.

   (LET ((ARGNAMES (GET NAME 'IL:ARGNAMES)))
        (AND ARGNAMES (COND
                         ((ATOM ARGNAMES)
                          (ERROR "Illegal ARGNAMES property for ~S" NAME))
                         ((NULL (CAR ARGNAMES))                  ; It's the fancy case.
                          (CDDR ARGNAMES))
                         (T                                      ; It's the simple case.
                            ARGNAMES)))))


(DEFUN NAMED-FUNCTION-WRAPPER-INFO (NAME DEFN FN-TO-CALL)
   (LET
    ((STORED-ARGLIST (AND NAME (GET-STORED-ARGLIST NAME))))
    (ETYPECASE DEFN
        (NULL                                                    ; It's an undefined function.
           (ASSERT (NOT (NULL NAME))
                   NIL "Null definition passed to SI::FUNCTION-WRAPPER-INFO")
           (VALUES 'LAMBDA '(&REST XCL:ARGLIST)
                   `(ERROR 'XCL:UNDEFINED-FUNCTION :NAME (CONS ',NAME XCL:ARGLIST))))
        (CONS                                                    ; It's an interpreted function.
           (ECASE (CAR DEFN)
               ((IL:LAMBDA)
                  (ETYPECASE (CADR DEFN)
                      (LIST                                      ; Lambda spread
                         (VALUES 'IL:LAMBDA (OR STORED-ARGLIST (CADR DEFN))
                                 `(FUNCALL ',FN-TO-CALL ,@(OR STORED-ARGLIST (CADR DEFN)))))
                      (SYMBOL                                    ; Lambda no-spread
                         (VALUES
                          'IL:LAMBDA
                          (OR STORED-ARGLIST (CADR DEFN))
                          `(APPLY ',FN-TO-CALL
                                  ,(IF (CONSP STORED-ARGLIST)
                                       `(LIST ,@STORED-ARGLIST)
                                       `(IL:FOR $FWI$ IL:TO ,(OR STORED-ARGLIST (CADR DEFN))
                                           IL:COLLECT (IL:ARG ,(OR STORED-ARGLIST (CADR DEFN))
                                                              $FWI$)))))))))
               ((IL:NLAMBDA) (ETYPECASE (CADR DEFN)
                                (LIST                            ; NLambda spread
                                   (VALUES 'IL:NLAMBDA (OR STORED-ARGLIST (CADR DEFN))
                                           `(FUNCALL ',FN-TO-CALL ,@(OR STORED-ARGLIST (CADR DEFN)))))
                                (SYMBOL                          ; NLambda no-spread
                                   (VALUES 'IL:NLAMBDA (OR STORED-ARGLIST (CADR DEFN))
                                           `(FUNCALL ',FN-TO-CALL ,(IF (CONSP STORED-ARGLIST)
                                                                       `(LIST ,@STORED-ARGLIST)
                                                                       (OR STORED-ARGLIST (CADR DEFN)))))))))
               ((LAMBDA) (VALUES 'LAMBDA (CLEAN-UP-CL-ARGLIST (CADR DEFN))
                                 `(APPLY ',FN-TO-CALL XCL:ARGLIST)))))
        (COMPILED-FUNCTION                                       ; It's compiled.
           (IF (NOT (COMPILED-FUNCTION-INTERLISP? DEFN))         ; Common Lisp function.
               (VALUES 'LAMBDA (COMPILED-FUNCTION-ARGLIST DEFN)
                       `(APPLY ',FN-TO-CALL XCL:ARGLIST))
               (ECASE (IL:ARGTYPE DEFN)
```

```
                (0                                                  ; Lambda spread function.
                   (LET ((ARGLIST (OR STORED-ARGLIST (COMPILED-FUNCTION-ARGLIST DEFN :INTERLISP? T))))
                        (VALUES 'IL:LAMBDA ARGLIST `(FUNCALL ',FN-TO-CALL ,@ARGLIST))))
                (1                                                  ; NLambda spread function.
                   (LET ((ARGLIST (OR STORED-ARGLIST (COMPILED-FUNCTION-ARGLIST DEFN :INTERLISP? T))))
                        (VALUES 'IL:NLAMBDA ARGLIST `(FUNCALL ',FN-TO-CALL ,@ARGLIST))))
                (2                                                  ; Lambda no-spread function.
                   (IF (SYMBOLP STORED-ARGLIST)
                       (VALUES 'IL:LAMBDA 'IL:U `(APPLY ',FN-TO-CALL
                                                        (IL:FOR $FWI$ IL:TO ,(OR STORED-ARGLIST 'IL:U)
                                                           IL:COLLECT (IL:ARG ,(OR STORED-ARGLIST
                                                                                   'IL:U)
                                                                              $FWI$))))
                       (VALUES 'IL:LAMBDA STORED-ARGLIST `(FUNCALL ',FN-TO-CALL ,@STORED-ARGLIST))))
                (3                                                  ; NLambda no-spread function.
                   ;; Its arglist may be a symbol, or NIL, or IL:U.  COMPILED-FUNCTION-ARGLIST will return a symbol in this case.
                   (LET ((ARGLIST (OR (AND (IL:NEQ STORED-ARGLIST 'IL:U)
                                           STORED-ARGLIST)
                                      (COMPILED-FUNCTION-ARGLIST DEFN :INTERLISP? T))))
                        (COND
                           (ARGLIST (SYMBOLP ARGLIST)
                                  (VALUES 'IL:NLAMBDA (IF (SYMBOLP ARGLIST)
                                                          ARGLIST
                                                          (CAR ARGLIST))
                                          `(IL:APPLY ',FN-TO-CALL (IL:MKLIST ,(IF (SYMBOLP ARGLIST)
                                                                                  ARGLIST
                                                                                  (CAR ARGLIST))))))
                           (T (VALUES 'IL:NLAMBDA ARGLIST `(FUNCALL ',FN-TO-CALL ,ARGLIST))))))))))))

(DEFUN PARSE-CL-ARGLIST (ARG-LIST)
   (LET ((REQUIRED NIL)
         (OPTIONAL NIL)
         (REST NIL)
         (KEY NIL)
         (KEY-APPEARED? NIL)
         (ALLOW-OTHER-KEYS NIL)
         (STATE :REQUIRED))
        (IL:|for| PARAM IL:|in| ARG-LIST IL:|do| (IF (MEMBER PARAM '(&OPTIONAL &KEY &REST))
                                                     (SETQ STATE PARAM)
                                                     (CASE STATE
                                                         (:REQUIRED (PUSH PARAM REQUIRED))
                                                         (&OPTIONAL (PUSH PARAM OPTIONAL))
                                                         (&REST (SETQ REST PARAM))
                                                         (&KEY (IF (EQ PARAM '&ALLOW-OTHER-KEYS)
                                                                   (SETQ ALLOW-OTHER-KEYS T)
                                                                   (PUSH PARAM KEY)))))
                                                 (WHEN (EQ PARAM '&KEY)
                                                       (SETQ KEY-APPEARED? T)))
        (VALUES (REVERSE REQUIRED)
                (REVERSE OPTIONAL)
                REST
                (REVERSE KEY)
                KEY-APPEARED? ALLOW-OTHER-KEYS)))

(DEFUN HAS-CALLS (CALLER CALLEE)
   ;; Tell if CALLEE is called by CALLER at all.
   ;; [JDS 3-10-93:  Used to use CALLS to find callee list; changed to CALLSCCODE, because CALLS isn't always loaded.]
   (LET ((REAL-CALLER (OR (GET CALLER 'IL:ADVISED)
                          (GET CALLER 'IL:BROKEN)
                          CALLER)))
        (OR (CONSP (IL:GETD REAL-CALLER))
            (FIND CALLEE (CADR (IL:CALLSCCODE REAL-CALLER))
                  :TEST
                  'EQ))))

(DEFUN CHANGE-CALLS (FROM TO FN &OPTIONAL FIXER)

;;; Side-effect the definition of FN to change all calls to FROM into calls to TO.  Also save enough information that SI::RESTORE-CALLS can fix up the
;;; definition again.

   (LET* ((REAL-FN-SYMBOL (OR (GET FN 'IL:ADVISED)
                              (GET FN 'IL:BROKEN)
                              FN))
          (REAL-FN-DEFN (IL:GETD REAL-FN-SYMBOL)))
         (TYPECASE REAL-FN-DEFN
             (CONS                                                  ; The function is interpreted.
                (WHEN (NULL (GET FN 'IL:NAMESCHANGED))              ; The first time we change calls, get a copy so as to avoid
                                                                    ; sharing structure with the DEFUN form.  Ugh.
                    (IL:PUTD REAL-FN-SYMBOL (SETQ REAL-FN-DEFN (COPY-TREE REAL-FN-DEFN))))
                (CHANGE-CALLS-IN-LAMBDA FROM TO REAL-FN-DEFN))
             (IL:COMPILED-CLOSURE (CHANGE-CALLS-IN-CCODE FROM TO REAL-FN-DEFN))
             (OTHERWISE (ERROR "SI::CHANGE-CALLS called on a non-function: ~S" FN))))
```

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    ;; If there's an opposite entry already in the info, just remove it.  We assume that we're being called from the same fellow that called us before and
    ;; that we want to simply undo that other call.
    (UNLESS (EQ FIXER 'RESTORE-CALLS)
        (FLET ((MATCHING (ENTRY)
                         (AND (EQ (FIRST ENTRY)
                                  TO)
                              (EQ (SECOND ENTRY)
                                  FROM))))
              (LET ((CURRENT-INFO (GET FN 'IL:NAMESCHANGED)))
                   (IF (SOME #'MATCHING CURRENT-INFO)
                       (IF (NULL (CDR CURRENT-INFO))
                           (REMPROP FN 'IL:NAMESCHANGED)
                           (SETF (GET FN 'IL:NAMESCHANGED)
                                 (DELETE-IF #'MATCHING CURRENT-INFO)))
                       (PUSH (LIST FROM TO FIXER)
                             (GET FN 'IL:NAMESCHANGED))))))
    NIL)

(DEFUN CHANGE-CALLS-IN-CCODE (FROM TO CCODE)
    ;; Change the calls in a compiled-code object??
    (IL:FOR REFMAP IL:IN (CDR (IL:CHANGECCODE FROM FROM CCODE))
       IL:DO (LET ((BASE (IL:FETCH (IL:REFMAP IL:CODEARRAY) IL:OF REFMAP)))
                  (IL:FOR LOC IL:IN (IL:FETCH (IL:REFMAP IL:DEFLOCS) IL:OF REFMAP)
                     IL:DO (IL:CODEBASESETATOM BASE LOC (IL:NEW-SYMBOL-CODE TO (IL:\\ATOMDEFINDEX TO)))))))

(DEFUN CHANGE-CALLS-IN-LAMBDA (FROM TO LAMBDA-FORM)

;;; Wrap all of the right parts of the given LAMBDA-FORM in the proper %WITH-CHANGED-CALLS forms changing calls to FROM into calls to TO.
;;; Actually side-effect the LAMBDA-FORM to make this change.

    (ECASE (CAR LAMBDA-FORM)
        ((IL:LAMBDA IL:NLAMBDA) (SETF (CDDR LAMBDA-FORM)
                                      (ADD-CHANGED-CALL FROM TO (CDDR LAMBDA-FORM))))
        ((LAMBDA)                                                    ; For Common Lisp functions, we have to be careful to wrap up
                                                                     ; the init-forms for any &OPTIONAL, &KEY, and &AUX
                                                                     ; parameters.
           (LET ((STATE :REQUIRED))
                (IL:|for| PARAM IL:|in| (SECOND LAMBDA-FORM)
                   IL:|do| (COND
                             ((CONSP PARAM)
                              (WHEN (AND (CONSP (CDR PARAM))
                                         (MEMBER STATE '(&OPTIONAL &KEY &AUX)
                                                 :TEST
                                                 'EQ))
                                  (SETF (SECOND PARAM)
                                        (CAR (ADD-CHANGED-CALL FROM TO (LIST (SECOND PARAM)))))))
                             ((MEMBER PARAM '(&OPTIONAL &REST &KEY &AUX)
                                      :TEST
                                      'EQ)
                              (SETQ STATE PARAM))))
                (SETF (CDDR LAMBDA-FORM)
                      (ADD-CHANGED-CALL FROM TO (CDDR LAMBDA-FORM))))))
    NIL)

(DEFUN ADD-CHANGED-CALL (FROM TO BODY)

;;; BODY is a list of forms in which calls to FROM should be changed into calls to TO.  If the BODY contains a single form that is a call to the macro
;;; SI::%WITH-CHANGED-CALLS, then we just side-effect that form to add another (FROM . TO) pair.  Otherwise, we wrap up the BODY in a new call to
;;; SI::%WITH-CHANGED-CALLS.  In either case, we return a list of the SI::%WITH-CHANGED-CALLS form.

;;; Actually, I lied.  If it's already a SI::%WITH-CHANGED-CALLS form, and the pair (TO . FROM) is in the list of changes, then we simply remove it from
;;; the list.  If the list is now empty, then we remove the SI::%WITH-CHANGED-CALLS form entirely and actually return the former body of the
;;; macro-call.

;;; The effect of this is that you can undo previous additions simply by exchanging the FROM and TO arguments to this function.

    (COND
       ((AND (NULL (REST BODY))
             (EQ (CAR (FIRST BODY))
                 '%WITH-CHANGED-CALLS))
        ;; It's already a call to %WITH-CHANGED-CALLS.
        (LET ((WCC-FORM (FIRST BODY)))
             (COND
                ((MEMBER (CONS TO FROM)
                         (SECOND WCC-FORM)
                         :TEST
                         'EQUAL)
                 ;; We're undoing a previous call to ADD-CHANGED-CALL.
                 (COND
                    ((NULL (REST (SECOND WCC-FORM)))                 ; There won't be anything left, so return the old body.
```

```
                    (CDDR WCC-FORM))
                   (T                                          ; Oh, well, there'll still be something there.  Just remove the
                                                               ; particular pair.
                      (SETF (SECOND WCC-FORM)
                            (DELETE (CONS TO FROM)
                                    (SECOND WCC-FORM)
                                    :TEST
                                    'EQUAL))
                      (LIST WCC-FORM))))
               (T (PUSH (CONS FROM TO)
                        (SECOND WCC-FORM))
                  (LIST WCC-FORM)))))
      (T ;; It's not already a %WITH-CHANGED-CALLS form, so make it into one.
         `((%WITH-CHANGED-CALLS (,(CONS FROM TO))
                  ,@BODY)))))

(DEFMACRO %WITH-CHANGED-CALLS (A-LIST &BODY BODY)
   `(MACROLET ,(IL:FOR PAIR IL:IN A-LIST IL:COLLECT `(,(CAR PAIR)
                                                      (&REST ARGS)
                                                      (CONS ',(CDR PAIR)
                                                            ARGS)))
           ,@BODY))

(DEFUN RESTORE-CALLS (FN)
   (IL:|for| ENTRY IL:|in| (GET FN 'IL:NAMESCHANGED) IL:|do| (XCL:DESTRUCTURING-BIND (FROM TO FIXER)
                                                               ENTRY
                                                               (CHANGE-CALLS TO FROM FN 'RESTORE-CALLS)
                                                               (FUNCALL FIXER FROM TO FN)))
   (AND (REMPROP FN 'IL:NAMESCHANGED)
        T))

(IL:DEFINEQ

(IL:VIRGINFN
  (IL:LAMBDA (IL:FN IL:MAKE-VIRGIN?)                           ; Edited 13-Apr-87 14:32 by Pavel
    (PROG ((IL:BROKEN-DEFN (IL:GETPROP IL:FN 'IL:BROKEN))
           (IL:ADVISED-DEFN (IL:GETPROP IL:FN 'IL:ADVISED))
           (IL:CHANGED-NAMES (IL:GETPROP IL:FN 'IL:NAMESCHANGED))
           (IL:EXPR-DEFN (IL:GETPROP IL:FN 'IL:EXPR))
           IL:REAL-DEFN)
          (IL:IF IL:MAKE-VIRGIN?
              IL:THEN
                  ;; We're supposed to return the function to its virgin state, without any breaks, advice, or changed names.
                  (IL:IF IL:BROKEN-DEFN
                      IL:THEN (XCL:UNBREAK-FUNCTION IL:FN)
                              (FORMAT *TERMINAL-IO* "~S unbroken.~%" IL:FN))
                  (IL:IF IL:ADVISED-DEFN
                      IL:THEN (IL:APPLY 'IL:UNADVISE (LIST IL:FN))
                              (FORMAT *TERMINAL-IO* "~S unadvised.~%" IL:FN))
                  (IL:IF IL:CHANGED-NAMES
                      IL:THEN (RESTORE-CALLS IL:FN)
                              (FORMAT *TERMINAL-IO* "Names restored in ~S.~%" IL:FN))
                  (IL:SETQ IL:REAL-DEFN (IL:GETD IL:FN))
                  (IL:IF (AND (NOT (IL:EXPRP IL:REAL-DEFN))
                              (NOT (NULL IL:EXPR-DEFN)))
                      IL:THEN (IL:SETQ IL:REAL-DEFN IL:EXPR-DEFN))
                  (RETURN IL:REAL-DEFN)
            IL:ELSE
                  ;; We're not supposed to change the state of the function with respect to breaking, advising or changed names.  We're just
                  ;; supposed to return the real, core definition.
                  (IL:SETQ IL:REAL-DEFN (IL:GETD (OR IL:ADVISED-DEFN IL:BROKEN-DEFN IL:FN)))
                  (IL:IF (OR (IL:NLISTP IL:REAL-DEFN)
                             (IL:NLISTP (CDR IL:REAL-DEFN)))
                     IL:THEN (RETURN (OR IL:EXPR-DEFN IL:REAL-DEFN))
                     IL:ELSE (IL:IF IL:CHANGED-NAMES
                                 IL:THEN (IL:SETQ IL:REAL-DEFN (IL:COPY IL:REAL-DEFN))
                                         (IL:FOR IL:X IL:IN IL:CHANGED-NAMES
                                            IL:DO (XCL:DESTRUCTURING-BIND (IL:FROM IL:TO)
                                                                          IL:X
                                                                          (CHANGE-CALLS-IN-LAMBDA IL:TO IL:FROM IL:REAL-DEFN))))
                             (RETURN IL:REAL-DEFN))))))

(CONSTRUCT-MIDDLE-MAN
  (LAMBDA (OBJECT-FN IN-FN)
          (BLOCK CONSTRUCT-MIDDLE-MAN
              (LET ((*PRINT-CASE* :UPCASE))
                   (INTERN (FORMAT NIL "~A in ~A::~A" OBJECT-FN (PACKAGE-NAME (SYMBOL-PACKAGE IN-FN))
                                   IN-FN)
                           (SYMBOL-PACKAGE OBJECT-FN))))))

)
```

```
(IL:PUTPROPS IL:NAMESCHANGED IL:PROPTYPE IGNORE)

;; Arrange for the proper compiler and package/readtable.

(IL:PUTPROPS IL:WRAPPERS IL:FILETYPE :FAKE-COMPILE-FILE)

(IL:PUTPROPS IL:WRAPPERS IL:MAKEFILE-ENVIRONMENT (:READTABLE "XCL" :PACKAGE "SI"))

(IL:DECLARE\: IL:DOEVAL@COMPILE IL:DONTCOPY

(IL:FILESLOAD (IL:LOADCOMP)
       IL:ACODE)
)

(IL:DECLARE\: IL:DONTEVAL@LOAD IL:DOEVAL@COMPILE IL:DONTCOPY IL:COMPILERVARS

(IL:ADDTOVAR IL:NLAMA )

(IL:ADDTOVAR IL:NLAML )

(IL:ADDTOVAR IL:LAMA )
)

(IL:RPAQQ IL:WRAPPERSCOMS
          ((IL:FUNCTIONS COMPILED-FUNCTION-ARGLIST COMPILED-FUNCTION-DEBUGGING-INFO COMPILED-FUNCTION-INTERLISP?
                 FUNCTION-WRAPPER-INFO CLEAN-UP-CL-ARGLIST GET-STORED-ARGLIST NAMED-FUNCTION-WRAPPER-INFO
                 PARSE-CL-ARGLIST)
           (IL:FUNCTIONS HAS-CALLS CHANGE-CALLS CHANGE-CALLS-IN-CCODE CHANGE-CALLS-IN-LAMBDA ADD-CHANGED-CALL
                 %WITH-CHANGED-CALLS RESTORE-CALLS)
           (IL:FNS IL:VIRGINFN CONSTRUCT-MIDDLE-MAN)
           (IL:PROP IL:PROPTYPE IL:NAMESCHANGED)
           ;; Arrange for the proper compiler and package/readtable.
           (IL:PROP (IL:FILETYPE IL:MAKEFILE-ENVIRONMENT)
                 IL:WRAPPERS)
           (IL:DECLARE\: IL:DOEVAL@COMPILE IL:DONTCOPY (IL:FILES (IL:LOADCOMP)
                                                                 IL:ACODE))
           (IL:DECLARE\: IL:DONTEVAL@LOAD IL:DOEVAL@COMPILE IL:DONTCOPY IL:COMPILERVARS (IL:ADDVARS (IL:NLAMA)
                                                                                                 (IL:NLAML)
                                                                                                 (IL:LAMA
                                                                                                 CONSTRUCT-MIDDLE-MAN
                                                                                                 )))))

(IL:DECLARE\: IL:DONTEVAL@LOAD IL:DOEVAL@COMPILE IL:DONTCOPY IL:COMPILERVARS

(IL:ADDTOVAR IL:NLAMA )

(IL:ADDTOVAR IL:NLAML )

(IL:ADDTOVAR IL:LAMA CONSTRUCT-MIDDLE-MAN)
)

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```

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