```
LLL                     IIIIIIIII           SSSSSSSSS         PPPPPPPPPPPP
LLL                     IIIIIIIII           SSSSSSSSS         PPPPPPPPPPPP
LLL                     IIIIIIIII           SSSSSSSSS         PPPPPPPPPPPP
LLL                        III           SSS         SSS     PPP         PPP
LLL                        III           SSS         SSS     PPP         PPP
LLL                        III           SSS         SSS     PPP         PPP
LLL                        III           SSS                 PPP         PPP
LLL                        III           SSS                 PPP         PPP
LLL                        III           SSS                 PPP         PPP
LLL                        III              SSSSSSSSS        PPPPPPPPPPPP
LLL                        III              SSSSSSSSS        PPPPPPPPPPPP
LLL                        III              SSSSSSSSS        PPPPPPPPPPPP
LLL                        III                      SSS      PPP
LLL                        III                      SSS      PPP
LLL                        III                      SSS      PPP
LLL                        III           SSS        SSS      PPP
LLL                        III           SSS        SSS      PPP
LLL                        III           SSS        SSS      PPP
LLLLLLLLLLLLLLL         IIIIIIIII           SSSSSSSSS        PPP
LLLLLLLLLLLLLLL         IIIIIIIII           SSSSSSSSS        PPP
LLLLLLLLLLLLLLL         IIIIIIIII           SSSSSSSSS        PPP
```

GS9 GJS

```
   CCCCCCCCC          555555555555555        222222222
   CCCCCCCCC          555555555555555        222222222
   CCCCCCCCC          555555555555555        222222222
CCC         CCC       555                 222         222
CCC         CCC       555                 222         222
CCC         CCC       555                 222         222
CCC                   555555555555                    222
CCC                   555555555555                    222
CCC                   555555555555                    222
CCC                              555              222
CCC                              555              222
CCC                              555              222
CCC                              555           222
CCC                              555           222
CCC                              555           222
CCC         CCC       555        555        222
CCC         CCC       555        555        222
CCC         CCC       555        555        222
   CCCCCCCCC              555555555        222222222222222
   CCCCCCCCC              555555555        222222222222222
   CCCCCCCCC              555555555        222222222222222
```

```
(DEFPROP INCR
         (LAMBDA (L) (LIST (QUOTE SETQ) (CADR L) (LIST (QUOTE ADD1) (CADR L))))
         MACRO)
```

```
(DEFPROP COMPILE
 (LAMBDA (L)
  (PROG (DATA)
        (SETQ
         DATA
         (MAPCAR (FUNCTION (LAMBDA (J)
                                   (COND ((SETQ DATA
                                                (GETL J (QUOTE (EXPR FEXPR))))
                                          (COM2 J (CAR DATA) (CADR DATA))))))
                 L))
        (IOC TV)
        (RETURN DATA)))
 FEXPR)

(DEFPROP CMP
         (LAMBDA (X) (PROG NIL
                           (PUTPROP (QUOTE TRY) (CAR X) (QUOTE EXPR))
                           (RETURN (COMPILE TRY))))
         FEXPR)

(DEFPROP COM2
         (LAMBDA (NAME FLAG EXP)
                 (PROG (LOUT SCNT SPVARS LOCVARS CNT LSUBRF)
                       (COND ((EQ FLAG (QUOTE EXPR)) (SETQ FLAG (QUOTE SUBR)))
                             ((EQ FLAG (QUOTE FEXPR))
                              (SETQ FLAG (QUOTE FSUBR))))
                       (SETQ EXP (P1A EXP))
                       (SETQ DATA NIL)
                       (SETQ LOUT (LIST (QUOTE LAP) NAME FLAG))
                       (SETQ SCNT CNT)
                       (PHASE2 EXP)
                       (OUTPUT (OUTPUT NIL))
                       (TERPRI)
                       (TERPRI)
                       (TYO 14)
                       (COND ((NOT (EQUAL CNT SCNT)) (PRINTTY (LIST SCNT CNT))))
                       (RETURN NAME)))
         EXPR)

(DEFPROP CMP1
         (LAMBDA NIL
                 (PROG (X FL DATA)
                  A    (COND ((EQ T (SETQ DATA (READ))) (RETURN T))
                             ((AND (EQ (CAR DATA) (QUOTE DEFPROP))
                                   (SETQ X (ASSOC (SETQ FL (CADDDR DATA))
                                                  (QUOTE ((EXPR . *EXPR)
                                                          (FEXPR . *FEXPR))))))
                              (PUTPROP (CADR DATA) T (CDR X))
                              (COM2 (SETQ X (CADR DATA)) FL (CADDR DATA))
                              (PRINTTY X))
                             ((AND (EQ (CAR DATA) (QUOTE DEFPROP))
                                   (EQ (CADDDR DATA) (QUOTE MACRO)))
                              (EVAL DATA)
                              (PRINT DATA))
                             (T (PRINT DATA)))
                       (GO A)))
         EXPR)
```

((MEMQ (CAR DATA) (QUOTE (SPECIAL UNSPECIAL))) (EVAL DATA))

```
(DEFPROP INIT
        (LAMBDA NIL (SPECIAL SPVARS
                             MACROS
                             SPFL
                             LOCVARS
                             CLIST
                             EFFS
                             NACS
                             LDLST
                             SPLDLST
                             LO
                             HI
                             NO
                             ARGNO
                             BVARS
                             DATA
                             RSL
                             RSSL
                             PRSSL
                             CTAG
                             VGO
                             VGOL
                             EXIT
                             EXITN
                             PVR
                             LOUT
                             LIS
                             END
                             G2
                             SFLG
                             SLOTLIST
                             CNT
                             GL
                             PVRL
                             PROGSW
                             IVAR
                             LSUBRF
                             VL
                             RNL
                             P1SCNT
                             P1STCNT
                             P1LL
                             HLAC P1SCV))
        EXPR)

(DEFPROP FREEZE
        (LAMBDA (X)
                (PROG (Z)
                      (SETQ Z SLOTLIST)
                 LP   (COND ((NULL Z) (RETURN NIL))
                            ((EQ X (CAAR Z))
                             (COND ((NULL (CDAR Z)) (RPLACA Z (CONS X CNT)))
                                   ((EQ (CDAR Z) (QUOTE DUP))
                                    (RPLACA Z NIL)))))
                      (SETQ Z (CDR Z))
                      (GO LP)))
        EXPR)
```

```
(DEFPROP CWORLD
        (LAMBDA NIL (PROG (K)
                          (SETQ K 0)
                     A    (COND ((EQ K NACS) (RETURN NIL)))
                          (CPUSH (SETQ K (ADD1 K)))
                          (GO A)))
        EXPR)

(DEFPROP COMP1 (LAMBDA (X ARGNO) (COMP X)) EXPR)

(DEFPROP COMP (LAMBDA (X) (COMPW X NIL)) EXPR)

(DEFPROP COMPE (LAMBDA (X) (REMOVE (COMPW X T))) EXPR)

(DEFPROP COMPW
        (LAMBDA (X EFFS)
                (PROG (Y)
                      (COND ((ATOM X) (GO A))
                            ((AND (ATOM (CAR X)) (GET (CAR X) (QUOTE OPEN)))
                             (SETQ X (LIST (CONS (SETQ Y (GENSYM))
                                                 (CONS (CAR X)
                                                       (COMP (CADR X))))))
                             (SETQ SPLDLST (NCONC SPLDLST X))
                             (SETQ Y (LIST Y))
                             (GO B))
                            (T (SETQ Y (COMPFUNC (CAR X) (CDR X) ARGNO))
                               (GO B)))
                 A    (SETQ Y (CONS X (SETQ CNT (ADD1 CNT))))
                      (COND ((SPECIALP X)
                             (SETQ SPLDLST (NCONC SPLDLST (LIST Y)))))
                 B    (SETQ LDLST (CONS Y LDLST))
                      (RETURN Y)))
        EXPR)

(DEFPROP NACS (NIL . 5) VALUE)

(DEFPROP NACS1 (LAMBDA NIL (CDDDDR SLOTLIST)) EXPR)

(DEFPROP LOAD
        (LAMBDA (X) (PROG (L HLAC)
                          (SETQ HLAC (SETQ L (LENGTH X)))
                     A    (COND ((ZEROP L) (RETURN NIL)))
                          (LOAD1 L (CAR X))
                          (SETQ X (CDR X))
                          (SETQ L (SUB1 L))
                          (GO A)))
        EXPR)

(DEFPROP P1BUG
        (LAMBDA (LO HI PTR)
                (MAPC (FUNCTION (LAMBDA (X) (COND ((GREATERP (CDR X) LO)
                                                   (RPLACD X HI)))))
                      PTR))
        EXPR)
```

```
(DEFPROP CLRACS
         (LAMBDA NIL (PROG (Z)
                           (SETQ Z NACS)
                           (CSPLD)
                     A     (COND ((ZEROP Z) (RETURN NIL)))
                           (CPUSH Z)
                           (CONT Z NIL)
                           (SETQ Z (SUB1 Z))
                           (GO A)))
         EXPR)

(DEFPROP OPUSH
         (LAMBDA (L) (PROG NIL (OUT1 (QUOTE PUSH) (QUOTE P) L) (SPUSH)))
         EXPR)

(DEFPROP OPUSHS
         (LAMBDA (L)
                 (PROG NIL (OPUSH (LIST (QUOTE SPECIAL) L)) (CONT 0 (LIST L))))
         EXPR)

(DEFPROP OPOP (LAMBDA (L) (PROG2 (OUT1 (QUOTE POP) (QUOTE P) L) (SPOP))) EXPR)

(DEFPROP LOCATE
         (LAMBDA (X AC)
                 (PROG (Z)
                       (SETQ Z (LOC X))
                   A   (COND ((NOT (NUMBERP Z)) NIL)
                             ((GREATERP Z 0) (REMOVE X) (CPUSH Z) (RETURN Z)))
                       (LOAD1 (SETQ Z AC) X)
                       (GO A)))
         EXPR)
```

```
(DEFPROP RESTORE
 (LAMBDA (X)
  (PROG (C V R TEM)
        (COND ((NULL X) (RETURN NIL))
        ((GREATERP (LENGTH X) (LENGTH SLOTLIST))
          (PRINTTY (LIST X SLOTLIST))
        (BARF RESTORE LOSSAGE)))
   A1   (SETQ C 0)
   A    (COND ((EQUAL (LENGTH X) (LENGTH SLOTLIST)) (RETURN (R1 C)))
              ((DVP (SETQ R (CADR (NACS1)))) (GO CPP)))
        (SETQ C (ADD1 C))
        (SPOP)
        (GO A)
   CPP  (R1 C)
   CPP1 (SETQ V (CDDDDR (CDR X)))
        (SETQ C NACS)
   CPP3 (COND
         ((NULL V) (OPOP (SETQ V (FREAC))) (CONT V R) (GO A1))
         ((AND (CAR V)
               (EQ (CAAR V) (CAR R))
               (NOT (DVP (CONTENTS (SETQ TEM
                                          (PLUS (MINUS C)
                                                NACS
                                                (LENGTH X)
                                                (MINUS (LENGTH SLOTLIST))))))))
          (GO CPP2)))
        (SETQ C (ADD1 C))
        (SETQ V (CDR V))
        (GO CPP3)
   CPP2 (CONT TEM R)
        (OPOP TEM)
        (GO A1)))
  EXPR)

(DEFPROP R1
         (LAMBDA (C) (COND ((NULL (ZEROP C))
                            (OUTPUT (LIST (QUOTE SUB)
                                          (QUOTE P)
                                          (LIST (QUOTE C) 0 0 C C))))))
         EXPR)

(DEFPROP BARF (LAMBDA (L) (PROG2 (PRINTTY L) (IOC G))) FEXPR)
```

```
001  (DEFPROP DVP
002   (LAMBDA (X)
003    (PROG (Y)
004          (RETURN (COND ((NULL X) NIL)
005                        ((EQ (CAR X) (QUOTE QUOTE)) NIL)
006                        ((EQ (CDR X) (QUOTE TAKEN)) T)
007                        ((EQ (CDR X) (QUOTE DUP)) NIL)
008                        ((AND (SPECIALP (CAR X)) (NOT (CDR X))) NIL)
009                        ((AND (SETQ Y (ASSOC (CAR X) LOCVARS))
010                              (NOT (CDR X))
011                              (LESSP CNT (CDR Y))))
012                        (T (PROG (Z)
013                                 (SETQ Z LDLST)
014                            A    (COND ((NULL Z)
015                                       (RETURN (COND ((SETQ Z (ASSOC (CAR X) VL))
016                                                      (DVP (CONS (CDR Z)
017                                                                 (CDR X))))
018                                                     (T NIL))))
019                                      ((AND (EQ (CAAR Z) (CAR X))
020                                            (EQUAL (LOC (COND ((NUMBERP (CDR X))
021                                                               X)
022                                                              (T (CONS (CAR X)
023                                                                       CNT))))
024                                                   (SETQ Y (LOC (CAR Z))))
025                                            Y)
026                                       (RETURN T)))
027                                 (SETQ Z (CDR Z))
028                                 (GO A))))))
029   EXPR)
030
031  (DEFPROP COMSTO
032          (LAMBDA (X Y) (PROG (TEM)
033                              (LOC (SETQ TEM (COMP (CADR Y))))
034                              (COND ((EQ X (QUOTE NSTORE))
035                                     (LOAD1 1 TEM)
036                                     (CPUSH 2)
037                                     (CONT 2 NIL)
038                                     (OUTPUT (QUOTE (PUSHJ P NUMVAL)))
039                                     (CONT 1 (SETQ TEM (LIST (GENSYM))))
040          (SETQ LDLST (CONS TEM LDLST))
041  ))
042                              (COMPE (CAR Y))
043                              (OUT1 (QUOTE DPB) (LOCATE TEM 1) 2)
044  ))      EXPR)
045
046  (DEFPROP COMPFUNC
047          (LAMBDA (X Y NO)
048                  (PROG (TEM ARGNO Z FNARGS VALAC INST NARGS HOME T1 CAC FNLOC)
049                        (SETQ ARGNO NO)
050                        (SETQ VALAC 1)
051                        (COND ((AND (SETQ T1 (NOT (ATOM X)))
052                                    (EQ (CDR X) (QUOTE SUBR)))
053                               (LOAD1 1 (COMP Y))
054                               (SETQ X (CAR X))
055                               (GO FX1))
056                              ((AND T1 (EQ (CAR X) (QUOTE LAMBDA)))
057                               (SETQ FNARGS T)
058                               (GO A))
059                              (T1 (SETQ FNARGS (COMP X)) (SETQ X NIL) (GO A))
060                              ((AND LSUBRF (EQ X (QUOTE ARG)))
```

```
                    (COMARG (COMP (CAR Y)))
                    (GO RET2))
                   ((MEMBER X (QUOTE (AND OR NULL EQ))) (GO BOO))
                   ((EQ X (QUOTE PROG2))
                    (COMPE (CAR Y))
                    (SETQ T1 (COMP (CADR Y)))
                    (MAPC (FUNCTION COMPE) (CDDR Y))
                    (RETURN T1))
                   ((GET X (QUOTE *FEXPR)) (GO FX2))
                   ((MEMBER X (QUOTE (NSTORE STORE))) (COMSTO X Y)
                                                      (GO RET2))
                   ((EQ X (QUOTE RETURN)) (GO COMRET))
                   ((OR (GETL X (QUOTE (SUBR EXPR *EXPR)))
                        (COND ((OR (MEMBER X SPVARS)
                                   (ASSOC X LOCVARS))
                               (SETQ FNARGS (COMP X)))))
                    (GO A))
                   ((EQ X (QUOTE COND)) (GO COMCOND))
                   ((EQ X (QUOTE PROG)) (GO COMPROG))
                   ((EQ X (QUOTE SETQ)) (GO COMSETQ))
                   ((EQ X (QUOTE QUOTE)) (RETURN (CONS X Y)))
                   ((EQ X (QUOTE GO)) (GO COMGO))
                   ((GET X (QUOTE LSUBR)) (GO COML))
                   ((NOT (GETL X (QUOTE (FSUBR FEXPR))))
                    (PRINTTY (LIST X (QUOTE UNDEFINED)))
                    (PUTPROP X T (QUOTE *EXPR))
                    (GO A)))
          FX2  (CSPLD)
               (LOAD1 1 (LIST (QUOTE QUOTE) Y))
          FX1  (SETQ NARGS 1)
               (SETQ CAC 17)
               (GO H)
          COML (COND ((AND (EQ X (QUOTE EVAL)) (NULL (CDR Y)))
                      (SETQ X (QUOTE *EVAL))
                      (GO A)))
               (COMPLC X Y)
               (GO RET)
          COMCOND
               (SETQ T1 (CAR Y))
          CC1  (COND ((NULL T1) (GO CC2))
                     ((ASSOC (CAR T1) LDLST) (GO CC3)))
CC6            (SETQ T1 (CDR T1))
               (GO CC1)
          CC2  (CLEAR1)
               (DOCOND (CDR Y) (SETQ VALAC NO))
               (SETQ CNT (PLUS CNT 2))
               (GO RET)
          CC3  (SETQ Z (LOC (CONS (CAR T1) CNT)))
               (COND ((NOT (NUMBERP Z)) (GO CC4))
                     ((NOT (DVP (CONTENTS Z)))
                      (CONT Z (CONS (CAR T1) CNT))
                      (GO CC1)))
          CC4  (DPUSH Z)
          CC5  (CONT 0 (CONS (CAR T1) CNT))
               (GO CC6)
          BOO  (BOOL4 (CONS X Y))
          RET2 (SETQ VALAC NO)
               (GO RET1)
          A    (SETQ ARGNO 0)
          A2   (COND ((NULL Y) (GO I)))
```

```
        (SETQ ARGNO (ADD1 ARGNO))
A1      (SETQ Z (CONS (COMP (CAR Y)) Z))
        (SETQ Y (CDR Y))
        (GO A2)
I       (COND ((EQ FNARGS T) (RETURN (P2LAM X Z)))
              ((MEMBER X (QUOTE (RPLACD RPLACA)))
               (ILOC1 (CADR Z) NO)
               (LOC (CAR Z))
               (REMOVS (CADR Z))
               (REMOVS (CAR Z))
               (CSPLD)
               (COND ((EQUAL (CAR Z) (QUOTE (QUOTE NIL)))
                      (OUT1 (GET X (QUOTE INSTN))
                            0
                            (LOC (CADR Z)))
                      (REMOVE (CAR Z)))
                     (T (OUT1 (GET X (QUOTE INST))
                              (LOCATE (CAR Z) (FRAC1))
                              (LOC (CADR Z)))))
               (RETURN (CADR Z)))
              ((NOT (EQ X (QUOTE CONS))) (GO T1))
              ((EQUAL (CAR Z) (QUOTE (QUOTE NIL)))
               (REMOVE (CAR Z))
               (SETQ Z (CDR Z))
               (SETQ X (QUOTE NCONS))))
T1      (SETQ NARGS (LENGTH Z))
        (COND ((AND (EQ NARGS 2)
                    (EQ (ILOC (CAR Z)) 1)
                    (SETQ TEM (GET X (QUOTE COMMU))))
               (SETQ Z (REVERSE Z))
               (SETQ X TEM)))
        (COND ((SETQ TEM (GET X (QUOTE ACS))))
              (SPLDLST (CSPLD3 Z)))
        (LOAD Z)
        (COND (TEM) (SPLDLST (CSPLD)))
H
H1      (COND ((AND FNARGS (GREATERP (LOC FNARGS) 0))
               (SETQ FNLOC (LOC FNARGS))
               (REMOVE FNARGS)))
        (SETQ ARGNO (COND ((GET X (QUOTE ACS))) (T 37)))
        (SETQ INST 0)
LP2     (SETQ INST (ADD1 INST))
        (COND ((ZEROP ARGNO) (GO LP3))
              ((NOT (ZEROP (BOOLE 1 1 ARGNO)))
               (COND ((DVP (CONTENTS INST)) (CPUSH INST)))
               (CONT INST NIL)))
        (SETQ ARGNO (LSH ARGNO -1))
        (GO LP2)
LP3     (COND (FNARGS (OUT1 (QUOTE CALLF*)
                            NARGS
                            (COND (FNLOC) (T (LOC FNARGS))))
                      (REMOVE FNARGS))
              (T (OUTPUT (LIST (QUOTE CALL)
                               (COND (CAC) (T NARGS))
                               (LIST (QUOTE E) X)))))
RET
RET1 (RETURN (CAR (CONT VALAC (LIST (GENSYM)))))
COMSETQ
     (RETURN (CSETQ Y))
COMPROG
```

```
                    (SETQ TEM (LMB (CADDR Y) NIL))
                    (SETQ SFLG NIL)
                    (COND ((EQUAL (CAR Y) (ADD1 CNT)) (CLEAR1)))
                    (CPROG Y TEM)
                    (GO RET2)
               COMGO(CPVRL)
                    (COND ((ATOM (CAR Y))
                           (OUTJ (QUOTE JRST) 0 (ADR (CAR Y))))
                          (T (LOAD1 1 (COMP (CAR Y)))
                             (OUTJ (QUOTE JRST) 0 VGO)))
                    (GO RET)
               COMRET
                    (CRET Y)
                    (GO RET)))
          EXPR)

(DEFPROP COMPLC
         (LAMBDA (X Y)
                 (PROG (NARGS HOME INST T1 T2)
                       (CLEAR1)
                       (SETQ NARGS (LENGTH Y))
                       (OPUSH (LIST (QUOTE C) 0 0 (SETQ T1 (GENSYM))))
                 COML1(CONT 0 (QUOTE (NIL . TAKEN)))
                       (COND ((NULL Y) (GO COML2)))
                       (SETQ HOME (APPEND SLOTLIST NIL))
                       (SETQ INST (COMP (CAR Y)))
                       (RESTORE HOME)
                       (OPUSH (LOC INST))
                       (REMOVE INST)
                       (SETQ Y (CDR Y))
                       (GO COML1)
                 COML2(SETQ T2 (LENGTH SLOTLIST))
                       (CWORLD)
                       (COND ((NOT (EQ (LENGTH SLOTLIST) T2)) (BARF LSLOSSAGE)))
                       (OUTPUT (LIST (QUOTE MOVNI) 6 NARGS))
                       (OUTPUT (LIST (QUOTE JCALL) 16 (LIST (QUOTE E) X)))
                       (OUTPUT T1)
                 COML3(SPOP)
                       (COND ((ZEROP NARGS) (CLRACS) (RETURN NIL)))
                       (SETQ NARGS (SUB1 NARGS))
                       (GO COML3)))
          EXPR)
```

```
(DEFPROP P2LAM
        (LAMBDA (X Y)
                (PROG (SF TEM TL ACL)
                      (SETQ TEM (CADR X))
                      (SETQ Y (REVERSE Y))
                A     (COND ((NULL TEM) (GO B)))
                      (SETQ TL (ILOC1 (CAR Y) (FREAC)))
                      (REMOVE (CAR Y))
                      (COND ((SPECIALP (CAR TEM))
                             (SETQ SF T)
                             (COND ((OR (NOT (NUMBERP TL)) (LESSP TL 1))
                                    (LOAD1 (SETQ TL (FREAC)) (CAR Y)))))
                            ((OR (NOT (NUMBERP TL)) (DVP (CONTENTS TL)))
                             (OPUSH TL)
                             (SETQ TL 0)))
                      (CONT TL (CONS (CAR TEM) (QUOTE TAKEN)))
                      (SETQ ACL (CONS TL ACL))
                      (SETQ Y (CDR Y))
                      (SETQ TEM (CDR TEM))
                      (GO A)
                B     (COND (SF (OUTPUT (QUOTE (JSP 6 SPECBIND)))) (T (GO D)))
                      (SETQ TEM (CADR X))
                C     (COND ((NULL TEM) (GO D))
                            ((SPECIALP (CAR TEM))
                             (PROG (Z)
                                   (SETQ Z SLOTLIST)
                              A    (COND ((NULL Z) (RETURN NIL))
                                         ((NULL (CAR Z)))
                                         ((AND (EQ (CAAR Z) (CAR TEM))
                                               (NULL (CDAR Z)))
                                          (RPLACA Z NIL)))
                                   (SETQ Z (CDR Z))
                                   (GO A))
                             (OUTPUT (LIST 0
                                           (ILOC (CONS (CAR TEM) CNT))
                                           (LIST (QUOTE SPECIAL) (CAR TEM))))))
                      (SETQ TEM (CDR TEM))
                      (GO C)
                D     (COND ((NULL ACL) (GO E)))
                      (RPLACD (CONTENTS (CAR ACL)) NIL)
                      (SETQ ACL (CDR ACL))
                      (GO D)
                E     (SETQ TEM (COMP (CADDR X)))
                      (COND (SF (OUTPUT (QUOTE (PUSHJ P SPECSTR)))))
                      (SETQ CNT (ADD1 CNT))
                      (RETURN TEM)))
        EXPR)

(DEFPROP CRET
        (LAMBDA (Y) (PROG NIL
                          (CPVRL)
                          (SETQ ARGNO PVR)
                          (COND ((EQUAL Y (QUOTE (QUOTE NIL)))
                                 (OUTJ (QUOTE JRST) 0 EXITN))
                                (T (LOAD1 PVR (COMP (CAR Y)))
                                   (OUTJ (QUOTE JRST) 0 EXIT)))))
        EXPR)

(DEFPROP CSETQ
        (LAMBDA (Y)
```

```
061                 (PROG (FNARGS HOME Z TEM DATA)
062                       (ILOC1 (SETQ Z (COMP (CADR Y))) NO)
063                       (COND ((ASSOC (CAR Y) SPLDLST) (GO COMS1)))
064                 COMS3(REMOVE Z)
065                       (FREEZE (CAR Y))
066                       (SETQ FNARGS (LOC Z))
067                       (SETQ HOME
068                             (COND ((SPECIALP (CAR Y)) T)
069                                   ((NOT (ILOC (SETQ TEM (CONS (CAR Y) CNT))))
070                                    NIL)
071                                   (T (NOT (DVP (CONTENTS (LOC TEM)))))))
072                       (SETQ CNT (ADD1 CNT))
073                       (COND ((AND EFFS (NOT HOME) (NOT (SPECIALP (CAR Y))))
074                              (COND ((AND (NUMBERP FNARGS)
075                                          (NOT (DVP (CONTENTS FNARGS))))
076                                     (CONT FNARGS (LIST (CAR Y)))
077                                     (RETURN NIL))
078                                    (T (DPUSH FNARGS)
079                                       (CONT D (LIST (CAR Y)))
080                                       (RETURN NIL)))))
081                        (COND ((AND HOME (EQUAL (CADR Y) (QUOTE (QUOTE NIL))))
082                               (SETQ TEM T)
083                               (OUT1 (COND ((OR EFFS (DVP (CONTENTS NO)))
084                                            (SETQ TEM NIL)
085                                            (QUOTE CLEARM))
086                                           (T (QUOTE CLEARB)))
087                                     NO
088                                     (SETQ Z
089                                           (COND ((SPECIALP (CAR Y))
090                                                  (LIST (QUOTE SPECIAL) (CAR Y)))
091                                                 (T (ILOC (CONS (CAR Y)
092                                                                (SUB1 CNT)))))))
093                               (COND ((NUMBERP Z) (CONT Z (LIST (CAR Y)))))
094                               (COND (TEM (CONT NO (CONS (CAR Y)
095                                                         (COND ((NUMBERP Z)
096                                                                (QUOTE DUP))
097                                                               (T NIL))))))
098                               (GO COMPS3)))
099                        (COND ((OR (NOT (NUMBERP FNARGS))
100                                   (LESSP FNARGS 0)
101                                   (DVP (CONTENTS FNARGS)))
102                               (LOAD1 (SETQ NO (COND (EFFS (FREAC)) (T NO))) Z)
103                               (SETQ FNARGS NO)))
104                        (CONT FNARGS (LIST (CAR Y)))
105                        (COND ((SPECIALP (CAR Y))
106                               (COND ((ZEROP FNARGS)
107                                      (DPOP (LIST (QUOTE SPECIAL) (CAR Y))))
108                                     (T (OUTPUT (LIST (QUOTE MOVEM)
109                                                      FNARGS
110                                                      (LIST (QUOTE SPECIAL)
111                                                            (CAR Y)))))))
112                 COMPS3
113                        (COND (EFFS (RETURN NIL)))
114                        (SETQ CNT (SUB1 CNT))
115                        (RETURN (COMP (CAR Y)))
116                 COMS1(DPUSHS (SETQ DATA (CAR Y)))
117                        (REMOVL (FUNCTION (LAMBDA (L) (EQ DATA (CAR L))))
118                                (QUOTE SPLDLST))
119                        (GO COMS3)))
120           EXPR)
```

```
(DEFPROP CSPLD3
        (LAMBDA (DATA)
                (REMOVL (FUNCTION (LAMBDA (L) (COND ((AND (NOT (ATOM (CDR L)))
                                                          (NOT (ASSOC (CAR L)
                                                                      DATA)))
                                                     (CSFUN L 1)
                                                     NIL)
                                                    (T NIL))))
                        (QUOTE SPLDLST)))
        EXPR)

(DEFPROP CSPLD1
        (LAMBDA NIL (REMOVL (FUNCTION (LAMBDA (L)
                                              (COND ((NOT (ATOM (CDR L))) NIL)
                                                    (T (CSPVAR L) T))))
                            (QUOTE SPLDLST)))
        EXPR)

(DEFPROP CSPLD2
        (LAMBDA (DATA LO)
                (PROG NIL (REMOVL (FUNCTION (LAMBDA (L)
                                                    (COND ((NOT (ATOM (CDR L)))
                                                           (CSFUN L DATA)
                                                           LO)
                                                          (T (CSPVAR L) T))))
                                  (QUOTE SPLDLST))))
        EXPR)

(DEFPROP CSFUN
        (LAMBDA (L AC) (PROG (Y) (COND ((AND (SETQ Y (ASSOC (CAR L) LDLST))
                                             (NOT (ILOC Y)))
                                        (CARCDR L AC)))))
        EXPR)

(DEFPROP CSPLD (LAMBDA NIL (CSPLD2 1 T)) EXPR)

(DEFPROP CSPVAR
        (LAMBDA (L) (PROG NIL (COND ((NOT (NUMBERP (ILOC (CONS (CAR L) CNT))))
                                     (OPUSHS (CAR L))
                                     (CONT 0 (CONS (CAR L) CNT))))))
        EXPR)

(DEFPROP P1A
        (LAMBDA (X)
                (PROG (Z BVARS RNL LL P1SCNT P1STCNT P1SCV)
                      (SETQ CNT 1)
                      (SETQ LOCVARS (SETQ SPVARS NIL))
                      (COND ((NULL (EQ (CAR X) (QUOTE LAMBDA))) (BARF ER2-1))
                            ((AND (CADR X) (ATOM (CADR X)))
                             (SETQ LSUBRF T)
                             (SETQ X (CONS (~~CAR X~~) QUOTE LAMBDA)
                                           (CONS (LIST (CADR X)) (CDDR X))))))
                      (SETQ LL (P1LMB (SETQ Z (CADR X))))
                      (COND ((GREATERP (LENGTH Z) NACS) (BARF TMA)))
                B     (RETURN (LIST (CAR X) LL (P1 (CADDR X))))))
        EXPR)
```

```
(DEFPROP P1LMB
 (LAMBDA (Z)
  (MAPCAR (FUNCTION (LAMBDA (J)
                            (PROG NIL
                                  (COND ((GET J (QUOTE SPECIAL))
                                         (SETQ SPVARS (ADD J SPVARS))
                                         (GO A))
                                        ((MEMBER J BVARS)
                                         (SETQ RNL
                                               (CONS (CONS J (SETQ J (GENSYM)))
                                                     RNL))))
                                  (PLOC J 0)
                            A     (SETQ BVARS (ADD J BVARS))
                                  (RETURN J))))
          Z))
 EXPR)

(DEFPROP P1LAM
         (LAMBDA (Z RNL)
                 (PROG (TEM LL)
                       (SETQ TEM (MAPCAR (FUNCTION P1) (CDR Z)))
                       (SETQ LL (P1LMB (CADAR Z)))
                       (SETQ CNT (ADD1 CNT))
                       (RETURN (CONS (LIST (QUOTE LAMBDA) LL (P1 (CADDAR Z)))
                                     TEM))))
         EXPR)
```

```
001  (DEFPROP P1
002   (LAMBDA (X)
003           (PROG (Z Y TEM IVAR)
004                 (COND ((ATOM X) (GO A))
005                       ((ATOM (CAR X)) (GO B))
006                       ((EQ (CAAR X) (QUOTE LAMBDA)) (RETURN (P1LAM X RNL)))
007                       ((EQ (CAAR X) (QUOTE LABEL))
008                        (RETURN (P1 (LIST (QUOTE PROG)
009                                          (LIST (CADAR X))
010                                          (LIST (QUOTE SETQ)
011                                                (CADAR X)
012                                                (P1 (LIST (QUOTE FUNCTION)
013                                                          (CADDAR X))))
014                                          (LIST (QUOTE RETURN)
015                                                (CONS (CADAR X) (CDR X)))))))
016                       (T (RETURN (MAPCAR (FUNCTION P1) X))))
017   A             (COND ((OR (NUMBERP X) (MEMBER X (QUOTE (T NIL))))
018                        (RETURN (LIST (QUOTE QUOTE) X)))
019                       ((SETQ Z (ASSOC X RNL)) (RETURN (P1 (CDR Z))))
020                       ((GET X (QUOTE SPECIAL)) (SETQ SPVARS (ADD X SPVARS)))
021                       ((VARB X) (GO AA))
022                       (T (PLOC X (ADD1 CNT))))
023   AA            (SETQ CNT (ADD1 CNT))
024                 (RETURN X)
025   B             (COND ((SETQ Z (ASSOC (CAR X) RNL))
026                        (RETURN (P1 (CONS (CDR Z) (CDR X)))))
027                       ((SETQ Z (GET (CAR X) (QUOTE MACRO))) (RETURN (P1 (Z X))))
028                       ((EQ (CAR X) (QUOTE SETQ)) (GO P1SETQ))
029                       ((EQ (CAR X) (QUOTE LIST))
030                        (RETURN (ITER (QUOTE CONS) (APPEND (CDR X) (LIST NIL)))))
031                       ((AND (EQ (LENGTH (CDR X)) 2)
032                             (SETQ Z (ASSOC (CAR X) (QUOTE ((GREATERP . *GREAT)
033                                     (LESSP . *LESS)
034                                     (PLUS . *PLUS)
035                                                          (APPEND . *APPEND)
036                                                          (DIFFERENCE . *DIF)
037                                                          (TIMES . *TIMES)
038                                                          (QUOTIENT . *QUO))))))
039                        (SETQ X (CONS (CDR Z) (CDR X))))
040                       ((EQ (CAR X) (QUOTE PROG)) (P1PSTP)
041                                                  (RETURN (P1PROG (CDR X) RNL)))
042                       ((EQ (CAR X) (QUOTE NOT))
043                        (SETQ X (CONS (QUOTE NULL) (CDR X))))
044                       ((EQ (CAR X) (QUOTE COND)) (GO P1COND))
045                       ((AND (EQ (CAR X) (QUOTE ERRSET)) (NOT (ATOM (CADR X))))
046                        (RETURN (CONS (CAR X)
047                                      (CONS (LIST (GFY (LIST (QUOTE LAMBDA)
048                                                             NIL
049                                                             (CADR X))))
050                                            (CDDR X)))))
051                       ((EQ (CAR X) (QUOTE GO)) (P1PSTP) (RETURN X))
052                       ((EQ (CAR X) (QUOTE RETURN)) (P1PSTP))
053                       ((SETQ Z (ASSOC (CAR X) (QUOTE ((FUNCTION . QUOTE)
054                                                       (*FUNCTION . *FUNCTION)))))
055                        (RETURN (LIST (CDR Z) (GFY (CADR X)))))
056                       ((MEMBER (CAR X) (QUOTE (AND OR)))
057                        (SETQ TEM LOCVARS)
058                        (SETQ Y CNT)
059                        (SETQ Z (MAPCAR (FUNCTION P1) (CDR X)))
060                        (GO AOS))
```

```
051                    ((GETL (CAR X) (QUOTE (EXPR SUBR *EXPR))))
052                    ((MEMBER (CAR X) (QUOTE (STORE NSTORE)))
053                     (SETQ Z (P1 (CADDR X)))
054                     (RETURN (LIST (CAR X) (P1 (CADR X)) Z)))
055                    ((GETL (CAR X) (QUOTE (FEXPR FSUBR *FEXPR))) (RETURN X))
056                    ((OR (GET (CAR X) (QUOTE SPECIAL)) (MEMBER (CAR X) BVARS))
057                     (SETQ X (CONS (P1 (CAR X)) (CDR X)))))
058                (SETQ Z (MAPCAR (FUNCTION P1) (CDR X)))
059                (COND ((AND (EQ (CAR X) (QUOTE EVAL))
060                            (NOT (CDDR X))
061                            (EQ (CAAR Z) (QUOTE CONS))
062                            (EQ (CAADAR Z) (QUOTE QUOTE))
063                            (GETL (SETQ TEM (CADADR (CAR Z)))
064                                  (QUOTE (FEXPR FSUBR *FEXPR))))
065                       (RETURN (CONS (CONS TEM (QUOTE SUBR)) (CADDAR Z)))))
066          C     (RETURN (CONS (CAR X) Z))
067          P1SETQ
068                (VARB (SETQ Y (COND ((SETQ Z (ASSOC (CADR X) RNL)) (CDR Z))
069                                    (T (CADR X)))))
070                (SETQ P1SCV (CONS Y P1SCV))
071                (SETQ Z (P1 (CADDR X)))
072                (SETQ CNT (ADD1 CNT))
073                (RETURN (LIST (CAR X) Y Z))
074          P1COND
075                (SETQ TEM LOCVARS)
076                (SETQ Y CNT)
077                (SETQ Z (P1CDC (CDR X)))
078          AOS   (SETQ CNT (ADD1 CNT))
079                (P1BUG Y CNT TEM)
080                (SETQ CNT (ADD1 CNT))
081                (GO C)))
082 EXPR)
083
084 (DEFPROP P1CDC
085          (LAMBDA (X) (PROG (P1SCV T1)
086                            (SETQ T1
087                                  (MAPCAR (FUNCTION (LAMBDA (J)
088                                                    (MAPCAR (FUNCTION P1)
089                                                            J)))
090                                          X))
091                            (RETURN (CONS P1SCV T1))))
092          EXPR)
093
094 (DEFPROP GFY
095          (LAMBDA (X) (COND ((ATOM X) X) (T (COM2 (GENSYM) (QUOTE EXPR) X))))
096          EXPR)
097
098 (DEFPROP P1PSTP (LAMBDA NIL (COND ((ZEROP P1SCNT) (SETQ P1SCNT P1STCNT)))) EXPR)
```

```
(DEFPROP P1PROG
 (LAMBDA (X RNL)
  (PROG (GL P1SCNT PR TEM P1LL P1STCNT)
        (SETQ P1LL (P1LMB (CAR X)))
        (SETQ TEM LOCVARS)
        (SETQ P1SCNT 0)
        (SETQ P1STCNT CNT)
        (SETQ
         PR
         (MAPCAR (FUNCTION (LAMBDA (Y)
                                   (PROG2 (SETQ P1STCNT (INCR CNT))
                                          (COND ((ATOM Y)
                                                 (P1PSTP)
                                                 (SETQ GL
                                                       (CONS (CONS Y (GENSYM))
                                                             GL))
                                                 Y)
                                                 (T (P1 Y))))))
                 (CDR X)))
         (SETQ CNT (ADD1 CNT))
         (COND ((NOT (ZEROP P1SCNT)) (P1BUG P1SCNT CNT TEM)))
         (REMOVL (FUNCTION (LAMBDA (X)
                                   (PROG (Z)
                                         (RETURN (COND ((SETQ Z
                                                              (ASSOC X LOCVARS))
                                                        (ZEROP (CDR Z)))))))
                 (QUOTE P1LL))
         (SETQ CNT (ADD1 CNT))
         (RETURN (LIST (QUOTE PROG) P1SCNT GL P1LL PR))))
 EXPR)

(DEFPROP OUTG
 (LAMBDA (X) (PROG NIL
                   (OUTPUT (CAR X))
             A     (SETQ X (CDR X))
                   (COND ((NULL X)
                          (RETURN (OUTPUT (QUOTE (PUSHJ P *UDT))))))
                   (OUTPUT (LIST (QUOTE CAIN) 1 (LIST (QUOTE QUOTE)
                                                      (CAAR X))))
                   (OUTPUT (LIST (QUOTE JRST) 0 (CDAR X)))
                   (GO A)))
 EXPR)

(DEFPROP CPROG
 (LAMBDA (X PSFLG)
         (PROG (GL EXIT EXITN PVR Z PRSSL PROGSW VGO VCL)
               (SETQ VCL (CAR X))
               (SETQ X (CDR X))
               (SETQ PROGSW T)
               (SETQ PVR NO)
               (SETQ EXIT (GENSYM))
               (SETQ EXITN (GENSYM))
               (SETQ VGO (GENSYM))
               (SETQ GL (CONS (CONS NIL EXIT)
                              (CONS (CONS NIL EXITN)
                                    (CONS (CONS NIL VGO) (CAR X)))))
               (SETQ Z (CADR X))
         L1    (COND ((NULL Z) (GO L2))
                     ((SPECIALP (CAR Z)))
                     (T (SETQ PVRL (CONS (CAR Z) PVRL))))
```

```
                    (SETQ Z (CDR Z))
                    (GO L1)
                L2  (SETQ X (CADDR X))
                L3(COND ((AND (NOT PROGSW)(NOT (ZEROP VCL))
        (NOT (EQ (LENGTH SLOTLIST)(LENGTH PRSSL))))
                (RESTORE PRSSL)))
    (COND ((NULL X) (GO L4))
                        ((EQUAL VCL (INCR CNT)) (CLEAR1)))
                    (COND ((ATOM (CAR X))
                           (CLRACS)
                           (CPVRL)
                           (RESTORE PRSSL)
                           (SETQ Z (ADR (CAR X)))
                           (COND ((NOT (ATOM LOUT))
                                  (PUTPROP Z LOUT (QUOTE PREVI))))
                           (OUTPUT Z))
                          ((AND (NULL (CDR X)) (EQ (CAAR X) (QUOTE RETURN)))
                           (COND ((OR (NULL (CDAR X)) (NULL (CADAR X)))
                                  (PUTPROP EXITN T (QUOTE USED))
                                  (GO L4))
                                 (T (LOAD1 PVR (COMP (CADAR X)))
                                    (COND ((GET EXITN (QUOTE USED))
                                           (OUTJ (QUOTE JRST) 0 EXIT)
                                           (GO L4))
                                          (T (GO L5))))))
                           (T (COMPE (CAR X))))
                    (SETQ X (CDR X))
                    (GO L3)
                L4  (OUTTAG EXITN)
                    (COND ((OR (NOT (EQ (CAR LOUT) (QUOTE JRST)))
                               (GET EXITN (QUOTE USED)))
                           (OUTPUT (LIST (QUOTE MOVEI)
                                         PVR
                                         (QUOTE (QUOTE NIL))))))
                L5  (OUTTAG EXIT)
                    (COND (PSFLG (OUTPUT (QUOTE (PUSHJ P SPECSTR)))))
                    (SETQ CNT (PLUS 2 CNT))
                    (COND ((GET VGO (QUOTE USED))
                           (SETQ VGOL (CONS (CONS VGO (CDDDR GL)) VGOL))))))
        EXPR)

(DEFPROP CPVRL
        (LAMBDA NIL (PROG NIL
                        (COND ((NOT PROGSW) (RETURN NIL)))
                        (SETQ PROGSW NIL)
                    L   (COND ((NULL PVRL) (SETQ PRSSL (APPEND SLOTLIST NIL))
                                           (RETURN NIL))
                              ((NOT (ILOC (CONS (CAR PVRL) CNT)))
                               (INITZ (CAR PVRL))))
                        (SETQ PVRL (CDR PVRL))
                        (GO L)))
        EXPR)

(DEFPROP INITZ
        (LAMBDA (X) (PROG NIL (OPUSH (QUOTE ((QUOTE NIL)))) (CONT 0 (LIST X))))
        EXPR)
```

```
001
002     (DEFPROP VARB
003             (LAMBDA (X) (PROG (Q)
004                                (COND ((MEMBER X BVARS) (RETURN NIL))
005                                      ((GET X (QUOTE SPECIAL)) (GO A)))
006                                (PRINTTY (LIST X (QUOTE UNDECLARED)))
007                                (PUTPROP X T (QUOTE SPECIAL))
008                            A   (SETQ SPVARS (ADD X SPVARS))
009                                (SETQ BVARS (ADD X BVARS))
010                                (RETURN T)))
011             EXPR)
012
013     (DEFPROP LOAD1
014             (LAMBDA (ACNO VAR)
015                     (PROG (Z OLDACC DATAORG DAC DOD)
016                           (REMOVE VAR)
017                           (SETQ Z (ILOC1 VAR ACNO))
018                           (SETQ OLDACC (CONTENTS ACNO))
019                           (SETQ DATAORG
020                                 (COND ((NOT (NUMBERP Z)) NIL) (T (CONTENTS Z))))
021                           (SETQ DAC (DVP OLDACC))
022                           (SETQ DOD (DVP DATAORG))
023                           (COND ((EQ ACNO Z) (COND (DAC (CPUSH ACNO)))(RETURN NIL))
024                                 ((AND (EQ Z 0) (NOT DOD) (NOT DAC)) (GO COMPOP))
025                                 ((AND (NOT DOD)
026                                       OLDACC
027                                       (NUMBERP Z)
028                                       (OR (LESSP Z 1)
029                                           (GREATERP Z HLAC)
030                                           (LESSP Z ACNO)))
031                                  (GO EXCOMP))
032                                 ((NOT DAC) (GO ACFREE))
033                                 (T (GO PUSHAC)))
034                       EXCOMP
035                            (CONT Z OLDACC)
036                            (OUT1 (QUOTE EXCH) ACNO Z)
037                            (GO T4)
038                       PUSHAC
039                            (CPUSH ACNO)
040                            (SETQ Z (LOC VAR))
041                       ACFREE
042                            (COND ((NOT (NUMBERP Z)) (GO T3)))
043                            (OUT1 (QUOTE MOVE) ACNO Z)
044                            (RETURN (CONT ACNO
045                                          (COND ((NULL (CDR DATAORG))
046                                                 (CONS (CAR DATAORG) (QUOTE DUP))))))
047                       COMPOP
048                            (OPOP ACNO)
049                       T4   (RETURN (CONT ACNO DATAORG))
050                       T3   (OUT1 (QUOTE MOVE) ACNO Z)
051                            (RETURN (CONT ACNO
052                                          (COND ((EQ (CAAR Z) (QUOTE QUOTE)) (CAR Z))
053                                                (T (LIST (CAR VAR)))))))
054             EXPR)
055
     (DEFPROP LOC (LAMBDA (X) (ILOC1 X NIL)) EXPR)
```

```
(DEFPROP ILOC
        (LAMBDA (X) (PROG (CNTR BEST BESTNO Y)
                          (SETQ Y SLOTLIST)
                          (SETQ CNTR 1)
                     A    (COND ((NULL Y) (GO B))
                                ((AND (CAR Y) (EQ (CAAR Y) (CAR X))) (GO C)))
                     D    (SETQ Y (CDR Y))
                          (SETQ CNTR (ADD1 CNTR))
                          (GO A)
                    TAKEIFN
                          (COND (BESTNO (GO D)))
                          (SETQ BESTNO 105105)
                          (GO TAKEL1)
                    TAKEL(SETQ BESTNO (CDAR Y))
                    TAKEL1
                          (SETQ BEST CNTR)
                          (GO D)
                     B    (COND (BESTNO (GO RETVAL))
                                ((SPECIALP (CAR X))
                                 (RETURN (LIST (QUOTE SPECIAL) (CAR X))))
                                ((EQ (CAR X) (QUOTE QUOTE)) (RETURN (LIST X)))
        ((SETQ Y (ASSOCR (CAR X) VL))
                                (RETURN (ILOC (CONS (CAR Y) (CDR X)))))
                                (T (RETURN NIL)))
                     C    (COND ((EQ (CAR X) (QUOTE QUOTE)) (GO QT))
                                ((OR (NULL (NUMBERP (CDAR Y))) (NULL (CDAR Y)))
                                 (GO TAKEIFN))
                                ((AND (NOT (LESSP (CDAR Y) (CDR X)))
                                      (OR (NULL BESTNO)
                                          (GREATERP BESTNO (CDAR Y))))
                                 (GO TAKEL))
                                (T (GO D)))
                    QT    (COND ((NULL (EQUAL X (CAR Y))) (GO D)))
                    TAKE  (SETQ BEST CNTR)
                    RETVAL
                          (RETURN (COND ((NOT (GREATERP BEST NACS)) BEST)
                                        (T (PLUS (MINUS BEST) NACS 1))))))
        EXPR)

(DEFPROP ILOC1
        (LAMBDA (X AC) (PROG (Z)
                        A    (COND ((SETQ Z (ILOC X)) (RETURN Z))
                                   ((MEMBER (CAR X) PVRL)
                                    (RETURN (QUOTE ((QUOTE NIL)))))
                                   ((SETQ Z (ASSOCR (CAR X) VL))
                                    (RETURN (ILOC1 (CONS (CAR Z) (CDR X)) AC)))
                                   ((SETQ Z (ASSOC (CAR X) SPLDLST))
                                    (RETURN (CARCDR Z (COND ((NULL AC) (FREAC))
                                                            (T AC))))))
                              (PRINTTY X)
                              (BARF DSI)))
        EXPR)
```

```
(DEFPROP CARCDR
 (LAMBDA (ITEM AC)
  (PROG (T3 T4 T5)
        (COND ((SETQ T5 (EQ (ILOC1 (SETQ T3 (CDDR ITEM)) AC) AC)) (REMOVE T3)))
        (COND ((OR (NULL T5) (DVP (CONTENTS AC))) (CPUSH AC)))
        (REMOVE T3)
        (SETQ T4 (CSTEP (CADR ITEM) AC (LOC T3)))
        (REMOVE T3)
        (COND ((NULL (CDR T4))
               (SETQ VL (CONS (CONS (CAR (CONTENTS (CAR T4))) (CAR ITEM)) VL))
               (RETURN (CAR T4))))
        (SETQ T4 (REVERSE T4))
   L1   (COND ((NULL (CDR T4)) (GO RET))
              ((EQ (LENGTH T4) 2) (GO L2))
              ((AND (EQ AC 1) (EQ (CAR T4) 1))
               (OUTPUT (LIST (QUOTE CALL)
                             1
                             (LIST (QUOTE E)
                                   (READLIST (CONS (QUOTE C)
                                                   (NCONC (REVERSE (CDR T4))
                                                          (QUOTE (R))))))))
               (GO RET)))
   L2   (OUT1 (GET (CADR T4) (QUOTE INST)) AC (CAR T4))
        (SETQ T4 (CONS AC (CDDR T4)))
        (GO L1)
   RET  (CONT AC (LIST (CAR ITEM)))
        (RETURN AC)))
 EXPR)

(DEFPROP CSTEP
         (LAMBDA (FUN AC LARGS)
                 (PROG (T2)
                       (RETURN (COND ((NULL FUN) (LIST LARGS))
                                     ((SETQ T2 (COPT FUN LARGS)) (LIST T2))
                                     (T (CONS (CAR (SETQ T2 (GET FUN
                                                                 (QUOTE OPEN))))
                                              (CSTEP (CDR T2) AC LARGS)))))))
         EXPR)

(DEFPROP COPT
         (LAMBDA (X Y) (PROG (TEM T1)
                             (SETQ TEM SPLDLST)
                        L    (COND ((NULL TEM) (RETURN NIL))
                                   ((ATOM (CDAR TEM)) (GO L1))
                                   ((AND (EQ X (CADAR TEM))
                                         (EQUAL (ILOC (CDDAR TEM)) Y)
                                         (SETQ T1 (ILOC (LIST (CAAR TEM)))))
                                    (RETURN T1)))
                        L1   (SETQ TEM (CDR TEM))
                             (GO L)))
         EXPR)

(DEFPROP PHASE2
         (LAMBDA (X)
                 (PROG (SLOTLIST LDLST
                                 SPFL
                                 FL
                                 ARGNO
                                 SFLG
                                 PVRL
```

```
                                SPLDLST
                                RSL
                                RSSL
                                PROGSW
                                VGOL
                                GL
                                CTAG
                                VL
                                HLAC)
                        (SETQ HLAC -105105)
                        (SETQ ARGNO 1)
                        (SETQ CNT 1)
                        (SETQ FL NACS)
                L1      (COND ((ZEROP FL) (GO L2)))
                        (SETQ SLOTLIST (CONS NIL SLOTLIST))
                        (SETQ FL (SUB1 FL))
                        (GO L1)
                L2      (COND (LSUBRF (SETQ LOUT (SUBST (QUOTE LSUBR)
                                                        (QUOTE SUBR)
                                                        LOUT))
                                      (OUTPUT (QUOTE (JSP 3 *LCALL))))
                                 ((AND (EQ (CADDR LOUT) (QUOTE FSUBR)) (CDADR X))
                                  (OUTPUT (QUOTE (PUSHJ P *AMAKE)))))
                        (SETQ SPFL (LMB (CADR X) T))
                        (COND ((NOT SPFL)) ((NOT (EQ (CAADDR X) (QUOTE PROG)))
                                            (SETQ SFLG NIL)))
                        (LOAD1 1 (COMP (CADDR X)))
                        (COND ((SETQ FL (ASSOC (CAR LOUT)
                                               (QUOTE ((PUSHJ . JRST)
                                                       (CALL . JCALL)))))
                               (SETQ ARGNO LOUT)
                               (SETQ LOUT (QUOTE FOO))
                               (NPDL)
                               (OUTPUT ARGNO)
                               (COND ((NOT SPFL)
                                      (SETQ LOUT (CONS (CDR FL)
                                                       (CONS (SUBST 0
                                                                    (QUOTE P)
                                                                    (CADR LOUT))
                                                             (CDDR LOUT))))
                                      (GO EXIT))))
                               (T (NPDL) (COND ((NOT SPFL)
                                                (OUTPUT (QUOTE (POPJ P)))
                                                (GO EXIT)))))
                        (OUTPUT (QUOTE (JRST 0 SPECSTR)))
                EXIT    (COND (VGOL (OUTG (CAR VGOL))
                                    (SETQ VGOL (CDR VGOL))
                                    (GO EXIT)))
                        (RETURN (COND (LDLST (PRINTTY LDLST))))))
        EXPR)

(DEFPROP NPDL (LAMBDA NIL (RESTORE (QUOTE (NIL NIL NIL NIL NIL)))) EXPR)
```

```
(DEFPROP LMB
         (LAMBDA (X Y) (PROG (ACN SFLG1 TEM)
                             (SETQ ACN 1)
                        A    (COND ((NULL X) (RETURN SFLG1))
                                   ((SPECIALP (CAR X)) (GO SP1))
                                   ((SETQ TEM (ASSOC (CAR X) LOCVARS)) (GO LV1))
                                   (T (GO SP2)))
                        LV1  (COND (Y (CONT ACN (LIST (CAR X)))))
                        SP2  (SETQ ACN (ADD1 ACN))
                             (SETQ X (CDR X))
                             (GO A)
                        SP1  (COND ((NULL SFLG) (GO B)))
                             (OUTPUT (LIST 0
                                           (COND (Y ACN) (T 0))
                                           (LIST (QUOTE SPECIAL) (CAR X))))
                             (GO LV1)
                        B    (SETQ SFLG (SETQ SFLG1 T))
                             (OUTPUT (QUOTE (JSP 6 SPECBIND)))
                             (GO A)))
         EXPR)

(DEFPROP CONT (LAMBDA (X Y) (RPLACA (FIND X) Y)) EXPR)

(DEFPROP CONTENTS (LAMBDA (X) (CAR (FIND X))) EXPR)

(DEFPROP OUTPUT
         (LAMBDA (X) (PROG2 (COND ((NOT (EQ LOUT (QUOTE FOO))) (PRINT LOUT)))
                            (SETQ LOUT X)))
         EXPR)

(DEFPROP OUT1
         (LAMBDA (A B C)
                 (OUTPUT (CONS (COND ((OR (ATOM C) (ATOM (CAR C))) A)
                                     (T (SETQ C (CAR C))
                                        (COND ((GET A (QUOTE IMMED)))
                                              (T (SETQ C (LIST (QUOTE C) 0 0 C))
                                              A))))
                               (CONS B (CONS C (COND ((OR (NOT (NUMBERP C))
                                                          (GREATERP C 0))
                                                     NIL)
                                                     ((QUOTE (P))))))))
         EXPR)

(DEFPROP ADD (LAMBDA (X Y) (COND ((MEMBER X Y) Y) (T (CONS X Y)))) EXPR)
```

```
(DEFPROP CPUSH
 (LAMBDA (X)
         (PROG (Z ZZ ZZX LK)
               (COND ((NULL (DVP (SETQ ZZX (CONTENTS X)))) (RETURN NIL))
                     ((LESSP X 1) (GO NOSLOT1)))
          A    (SETQ ZZ 0)
               (SETQ Z (CDR (NACS1)))
          A2   (COND ((NULL Z) (GO NOSLOT))
                     ((DVP (CAR Z)))
                     ((AND LK (OR (NOT (NUMBERP (CDAR Z))) (SPECIALP (CAAR Z))))
                      (GO FNDSLOT))
                     ((EQ (CAR ZZX) (CAAR Z)) (GO FNDSLOT)))
               (SETQ Z (CDR Z))
               (SETQ ZZ (SUB1 ZZ))
               (GO A2)
          FNDSLOT
               (CONT ZZ ZZX)
               (OUT1 (QUOTE MOVEM) X ZZ)
          RET  (RETURN (CONT X (CONS (CAR ZZX) (QUOTE DUP))))
          NOSLOT
               (COND ((SETQ LK (NOT LK)) (GO A)))
          NOSLOT1
               (COND ((AND PROGSW (NOT (ASSOC (CAR ZZX) LOCVARS)))
                      (SETQ Z (LENGTH SLOTLIST))
                      (CPVRL)
                      (COND ((LESSP X 1)
                             (SETQ X
                                   (PLUS X
                                         (DIFFERENCE Z (LENGTH SLOTLIST))))))
                     (OPUSH X)
                     (CONT 0 ZZX)
                     (GO RET)))
  EXPR)

(DEFPROP SPECIALP (LAMBDA (X) (MEMBER X SPVARS)) EXPR)

(DEFPROP REMOVL
         (LAMBDA (F VAR) (PROG NIL
                               (SETQ VAR (GET VAR (QUOTE VALUE)))
                          A    (COND ((NULL (CDR VAR)) (RETURN NIL))
                                     ((F (CADR VAR)) (RPLACD VAR (CDDR VAR)))
                                     (T (SETQ VAR (CDR VAR))))
                               (GO A)))
         EXPR)

(DEFPROP REMOVS (LAMBDA (DATA) (REMOVL (FUNCTION REM1) (QUOTE SPLDLST))) EXPR)

(DEFPROP REMOVE
         (LAMBDA (DATA) (PROG NIL
                              (REMOVL (FUNCTION REM1) (QUOTE LDLST))
                              (REMOVL (FUNCTION REM1) (QUOTE SPLDLST))))
         EXPR)

(DEFPROP REM1 (LAMBDA (X) (EQUAL X DATA)) EXPR)
```

```
(DEFPROP BOOL1
         (LAMBDA (EXP TAG F)
                 (COND ((EQ (CAR EXP) (QUOTE AND)) (BOOL2 (CDR EXP) TAG T F)
                                                   (SETQ CNT (PLUS 2 CNT)))
                       ((EQ (CAR EXP) (QUOTE OR))
                        (BOOL2 (CDR EXP) TAG NIL (NOT F))
                        (SETQ CNT (PLUS 2 CNT)))
                       ((EQ (CAR EXP) (QUOTE NULL))
                        (BOOL1 (CADR EXP) TAG (NOT F)))
                       ((EQ (CAR EXP) (QUOTE EQ)) (BOOL3 (CDR EXP) F TAG)
                                                  (OUTJ (QUOTE JRST) 0 TAG))
                       ((EQ (CAR EXP) (QUOTE QUOTE))
                        (BOOL2 NIL TAG NIL (COND (F (CADR EXP))
                                                 (T (NOT (CADR EXP))))))
                       ((EQ (CAR EXP) (QUOTE ZEROP))
                        (SETQ EXP (LOCATE (COMP (CADR EXP)) NO))
                        (OUTJ (COND (F (QUOTE SOJE)) (T (QUOTE SOJN))) EXP TAG)
                        (CONT EXP NIL))
                       (T (SETQ EXP (LOCATE (COMP EXP) NO))
                          (OUTJ (COND (F (QUOTE JUMPN)) (T (QUOTE JUMPE)))
                                EXP
                                TAG)
                          (COND (F (RSLSET TAG) (CONT EXP (QUOTE (QUOTE NIL))))
                                (T (SETQ F (CONTENTS EXP))
                                   (CONT EXP (QUOTE (QUOTE NIL)))
                                   (RSLSET TAG)
                                   (CONT EXP F))))))
         EXPR)

(DEFPROP RSLSET
         (LAMBDA (X) (COND ((EQ X CTAG)
                            (SETQ RSL (COND (RSL (QUOTE LOSE))
                                            (T (APPEND SLOTLIST NIL)))))))
         EXPR)

(DEFPROP BOOL2
         (LAMBDA (EXP TAG F1 F2)
                 (PROG (G)
                       (CLEAR1)
                       (PUTPROP (SETQ G (GENSYM))
                                (APPEND SLOTLIST NIL)
                                (QUOTE LEVEL))
                   A   (COND ((NULL EXP) (COND (F2 (OUTJ (QUOTE JRST) 0 TAG)))
                                         (GO C))
                             ((AND F2 (NULL (CDR EXP))) (GO B)))
                       (BOOL1 (CAR EXP) (COND (F2 G) (T TAG)) (NOT F1))
                       (SETQ EXP (CDR EXP))
                       (GO A)
                   B   (BOOL1 (CAR EXP) TAG F1)
                       (OUTTAG G)
                   C   (CLRACS)))
         EXPR)
```

```
(DEFPROP BOOL3
        (LAMBDA (EXP F TAG)
                (PROG (W X Y Z AC)
                      (SETQ X (COMP (CAR EXP)))
                      (SETQ Y (ILOC1 (SETQ Z (COMP1 (CADR EXP) (FRAC1)))
                                     (FRAC1)))
                      (SETQ W (ILOC1 X (FRAC1)))
                      (COND ((AND (NUMBERP W) (LESSP 0 W)) (SETQ AC W)
                                                           (REMOVE X)
 (COND ((AND (NUMBERP Y) (GREATERP Y 0))(REMOVE Z)))
                                                           (RST TAG)
                                                           (SETQ Y (LOC Z))
                                                           (GO A))
                                 ((AND (NUMBERP Y) (LESSP 0 Y)) (SETQ AC Y)
                                                           (REMOVE Z)
                                                           (RST TAG)
                                                           (SETQ Y (LOC X))
                                                           (GO A)))
                      (LOAD1 (SETQ AC (FRAC1)) X)
                      (RST TAG)
                      (SETQ Y (LOC Z))
                      (GO A1)
                A     (REMOVE X)
                A1    (REMOVE Z)
                      (CWORLD)
                      (OUT1 (COND (F (QUOTE CAMN)) (T (QUOTE CAME))) AC Y)))
        EXPR)

(DEFPROP FRAC1 (LAMBDA NIL (COND ((DVP (CONTENTS 1)) (FREAC)) (T 1))) EXPR)

(DEFPROP RST
        (LAMBDA (X) (COND ((NULL X) NIL)
                          ((ASSOCR X GL) (RESTORE PRSSL))
                          ((REMPROP X (QUOTE SET))
                           (CWORLD)
                           (PUTPROP X (APPEND SLOTLIST NIL) (QUOTE LEVEL)))
                          ((SETQ X (GET X (QUOTE LEVEL))) (RESTORE X))
                          (T (RESTORE RSSL))))
        EXPR)

(DEFPROP ASSOCR
        (LAMBDA (X Y) (PROG NIL
                      A     (COND ((NULL Y) (RETURN NIL))
                                  ((EQ X (CDAR Y)) (RETURN (CAR Y))))
                            (SETQ Y (CDR Y))
                            (GO A)))
        EXPR)
```

```
001
002     (DEFPROP BOOL4
003              (LAMBDA (EXP) (PROG (G)
004                                  (COND ((EQ (CAR EXP) (QUOTE EQ))
005                                         (BOOL3 (CDR EXP) NIL NIL)
006                                         (GO L)))
007                                  (PUTPROP (SETQ G (GENSYM)) T (QUOTE SET))
008                                  (BOOL1 EXP G T)
009                                  (COND ((NOT (GET G (QUOTE USED))) (CPUSH NO)))
010                                L (COND ((NOT EFFS) (OUT1 (QUOTE TDZA) NO NO)))
011                                  (OUTTAG G)
012                                  (COND ((NOT EFFS) (OUT1 (QUOTE MOVEI) NO T)))))
013              EXPR)
014
015     (DEFPROP ITER
016              (LAMBDA (FN ARGS)
017                      (COND ((NULL (CDR ARGS)) (P1 (CAR ARGS)))
018                            (T (LIST FN (P1 (CAR ARGS)) (ITER FN (CDR ARGS))))))
019              EXPR)
020
021     (DEFPROP OUTJ
022              (LAMBDA (X Y Z)
023                      (PROG NIL
024                            (CWORLD)
025                            (CSPLD2 1 NIL)
026                            (RST Z)
027                            (PUTPROP Z T (QUOTE USED))
028                            (COND ((EQUAL LOUT (GET Z (QUOTE PREVI)))
029                                   (RETURN (SETQ LOUT (LIST X Y (LIST Z -1))))))
030                            (OUTPUT (LIST X Y Z))))
031              EXPR)
032
033     (DEFPROP ADR
034              (LAMBDA (X) (PROG (Z)
035                                (COND ((SETQ Z (ASSOC X GL)) (RETURN (CDR Z))))
036                                (PRINTTY (LIST (QUOTE UNDEFINED) (QUOTE TAG) X))
037                                (RETURN EXIT)))
038              EXPR)
039
040     (DEFPROP FREAC
041              (LAMBDA NIL (PROG (Z ZZ SW)
042                              L1 (SETQ ZZ 0)
043                                 (SETQ Z SLOTLIST)
044                              L2 (SETQ ZZ (ADD1 ZZ))
045                                 (COND ((GREATERP ZZ NACS)
046                                        (COND (SW (CPUSH NACS) (RETURN NACS))
047                                              (T (SETQ SW T) (GO L1))))
048                                       ((OR (NULL (CAR Z)) (AND SW (DVP (CAR Z))))
049                                        (RETURN ZZ)))
050                                 (SETQ Z (CDR Z))
051                                 (GO L2)))
052              EXPR)
053
054     (DEFPROP OUTTAG
055              (LAMBDA (X) (COND ((GET X (QUOTE USED)) (CLRACS) (RST X) (OUTPUT X))))
056              EXPR)
```

```
(DEFPROP COMARG
        (LAMBDA (Y)
                (PROG NIL
                        (COND ((EQ (CAR Y) (QUOTE QUOTE))
                               (OUT1 (QUOTE MOVE) NO (INDEX))
                               (RETURN (OUTPUT (LIST (QUOTE HRRZ) NO Y NO)))))
                        (LOAD1 NO Y)
                        (OUT1 (QUOTE ADD) NO (INDEX))
                        (RETURN (OUTPUT (LIST (QUOTE HRRZ) NO 0 NO)))))
        EXPR)

(DEFPROP INDEX (LAMBDA NIL (PLUS (MINUS (LENGTH SLOTLIST)) NACS -1)) EXPR)

(DEFPROP FIND
        (LAMBDA (X) (PROG (ZZ)
                          (SETQ ZZ SLOTLIST)
                          (COND ((GREATERP X 0) (GO LP3)))
                          (SETQ X (PLUS 1 NACS (MINUS X)))
                     LP3  (SETQ X (SUB1 X))
                          (COND ((ZEROP X) (RETURN ZZ)))
                          (SETQ ZZ (CDR ZZ))
                          (GO LP3)))
        EXPR)

(DEFPROP SPUSH (LAMBDA NIL (RPLACD (NACS1) (CONS NIL (CDR (NACS1))))) EXPR)

(DEFPROP SPOP (LAMBDA NIL (RPLACD (NACS1) (CDDR (NACS1)))) EXPR)
```

```
(DEFPROP PLOC
 (LAMBDA (IVAR NO)
         (RPLACD (SASSOC IVAR
                         LOCVARS
                         (FUNCTION (LAMBDA NIL (CAR (SETQ LOCVARS
                                                          (CONS (LIST IVAR)
                                                                LOCVARS))))))
                 NO))
 EXPR)

(DEFPROP PRINTTY
         (LAMBDA (DATA) (IOG NIL (FUNCTION (LAMBDA NIL (PRINT DATA)))))
         EXPR)

(DEFPROP DOCOND
         (LAMBDA (EXP AC)
                 (PROG (G1 G2 H1 H2 T1 RSL IRSSL JSP CTAG TEM)
                       (PUTPROP (SETQ G1 (GENSYM))
                                (SETQ IRSSL (APPEND SLOTLIST NIL))
                                (QUOTE LEVEL))
                   A   (SETQ JSP T)
                       (SETQ RSL NIL)
                       (COND ((NULL EXP) (COND (T1 (OUT1 (QUOTE MOVEI)
                                                         AC
                                                         (QUOTE (QUOTE NIL)))))
                                               (OUTTAG G1)
                                               (CLRACS)
                                               (RESTORE IRSSL)
                                               (RETURN NIL))
                             ((NULL (CDAR EXP))
                              (LOAD1 AC (COMP (CAAR EXP)))
                              (COND ((CDR EXP) (OUTJ (QUOTE JUMPN) AC G1))
                                    (T (RESTORE IRSSL)))
                              (GO B))
                             ((AND (EQUAL (CDAR EXP) (QUOTE ((QUOTE NIL))))
                                   (EQ (CAAAR EXP) (QUOTE NULL))
                                   (OR (ATOM (CADAAR EXP))
                                       (NOT (MEMBER (CAR (CADAAR EXP))
                                                    (QUOTE (AND OR
                                                                NULL
                                                                EQ
                                                                ZEROP))))))
                              (LOAD1 AC (COMP (CADAAR EXP)))
                              (OUTJ (QUOTE JUMPE) AC G1)
                              (SETQ T1 T)
                              (GO D))
                             ((OR LDLST(CDDAR EXP)) (GO L2))
                             ((AND(EQ (CAADAR EXP) (QUOTE GO))
                       (ATOM (SETQ T1 (CADADR (CAR EXP)))))
                              (BOOL1 (CAAR EXP) (ADR T1) T)
                              (GO B))
                             ((EQUAL (CADAR EXP) (QUOTE (RETURN (QUOTE NIL))))
                              (BOOL1 (CAAR EXP) EXITN T)
                              (GO B)))
                   L2  (SETQ JSP (NOT (OR (EQ (SETQ H2 (CAAR (LAST (CAR EXP))))
                                              (QUOTE RETURN))
                                          (EQ H2 (QUOTE GO)))))
                       (PUTPROP (SETQ G2 (SETQ CTAG (GENSYM)))
                                IRSSL
                                (QUOTE LEVEL))
```

```
                    (SETQ RSL NIL)
                    (BOOL1 (CAAR EXP) G2 NIL)
                    (SETQ H2 (COND ((AND RSL (NOT (ATOM RSL))) RSL)
                                   (T (APPEND SLOTLIST NIL))))
                    (SETQ H1 (APPEND SPLDLST NIL))
                    (SETQ T1 (CDAR EXP))
              LP1   (COND ((NULL (CDR T1)) (GO L1)))
                    (COMPE (CAR T1))
                    (SETQ T1 (CDR T1))
                    (GO LP1)
              L1    (COND (EFFS (COMPE (CAR T1)))
                          (T (LOAD1 AC (COMP (CAR T1)))))
                    (CWORLD)
                    (SETQ SPLDLST H1)
                    (SETQ H1 SLOTLIST)
                    (SETQ SLOTLIST H2)
                    (SETQ TEM (EQUAL (CONTENTS AC) (QUOTE (QUOTE NIL))))
                    (SETQ SLOTLIST H1)
                    (SETQ T1 NIL)
                    (COND (JSP (COND ((OR (CDR EXP)
                                          (AND (NOT EFFS)
                                               (NOT TEM)
                                               (SETQ T1
                                                     (GET G2 (QUOTE USED))))
                                      (OUTJ (QUOTE JRST) 0 G1))
                                     (T (RESTORE IRSSL)))))
                    (SETQ SLOTLIST H2)
                    (OUTPUT G2)
                    (GO D)
              B     (SETQ T1 NIL)
              D     (SETQ EXP (CDR EXP))
                    (GO A)))
        EXPR)

(DEFPROP SPECIAL
        (LAMBDA (X) (PROG NIL
                L       (COND ((NULL X) (RETURN T)))
                        (PUTPROP (CAR X) T (QUOTE SPECIAL))
                        (SETQ X (CDR X))
                        (GO L)))
        FEXPR)

(DEFPROP CLEAR (LAMBDA NIL (PROG NIL (CSPLD) (CWORLD) (RETURN (CPVRL)))) EXPR)

(DEFPROP CLEAR1
        (LAMBDA NIL (PROG NIL
                        (CSPLD3 NIL)
                        (CSPLD2 1 NIL)
                        (CWORLD)
                        (RETURN (CPVRL))))
        EXPR)

(DEFPROP A HLRZ# INST)

(DEFPROP D HRRZ# INST)

(DEFPROP HRRZ# HRRZ IMMED)

(DEFPROP HLRZ# HLRZ IMMED)
```

(DEFPROP UNSPECIAL
(LAMBDA(L)
(MAPC (FUNCTION (LAMBDA(X)
(REMPROP X
(QUOTE SPECIAL))))
L)) FEXPR)

```
(DEFPROP MOVE MOVEI IMMED)

(DEFPROP CAMN CAIN IMMED)

(DEFPROP CAME CAIE IMMED)

(DEFPROP CAR (A) OPEN)

(DEFPROP CDR (D) OPEN)

(DEFPROP CAAR (A . CAR) OPEN)

(DEFPROP CADR (A . CDR) OPEN)

(DEFPROP CDAR (D . CAR) OPEN)

(DEFPROP CDDR (D . CDR) OPEN)

(DEFPROP ADD1 3 ACS)

(DEFPROP SUB1 3 ACS)

(DEFPROP CONS XCONS COMMU)

(DEFPROP CONS 3 ACS)

(DEFPROP ATOM 1 ACS)

(DEFPROP NUMBERP 1 ACS)

(DEFPROP GENSYM 7 ACS)

(DEFPROP CAAAR (A . CAAR) OPEN)

(DEFPROP CAADR (A . CADR) OPEN)

(DEFPROP CADAR (A . CDAR) OPEN)

(DEFPROP CDAAR (D . CAAR) OPEN)

(DEFPROP CDADR (D . CADR) OPEN)

(DEFPROP CDDAR (D . CDAR) OPEN)

(DEFPROP CDDDR (D . CDDR) OPEN)

(DEFPROP CADDR (A . CDDR) OPEN)

(DEFPROP *PLUS *PLUS COMMU)

(DEFPROP EQUAL EQUAL COMMU)

(DEFPROP EQUAL 7 ACS)

(DEFPROP *TIMES *TIMES COMMU)

(DEFPROP XCONS 3 ACS)

(DEFPROP NCONS 3 ACS)
```

```
(DEFPROP *APPEND 37 ACS)

(DEFPROP MINUS 3 ACS)

(DEFPROP GET 1 ACS)

(DEFPROP *GREAT *LESS COMMU)

(DEFPROP *LESS *GREAT COMMU)

(DEFPROP MEMBER 37 ACS)

(DEFPROP LENGTH 7 ACS)

(DEFPROP LAST 3 ACS)

(DEFPROP CAAAAR (A . CAAAR) OPEN)

(DEFPROP CAAADR (A . CAADR) OPEN)

(DEFPROP CAADAR (A . CADAR) OPEN)

(DEFPROP CAADDR (A . CADDR) OPEN)

(DEFPROP CADAAR (A . CDAAR) OPEN)

(DEFPROP CADADR (A . CDADR) OPEN)

(DEFPROP CADDAR (A . CDDAR) OPEN)

(DEFPROP CADDDR (A . CDDDR) OPEN)

(DEFPROP CDDDDR (D . CDDDR) OPEN)

(DEFPROP CDDDAR (D . CDDAR) OPEN)

(DEFPROP CDDADR (D . CDADR) OPEN)

(DEFPROP CDDAAR (D . CDAAR) OPEN)

(DEFPROP CDADDR (D . CADDR) OPEN)

(DEFPROP CDADAR (D . CADAR) OPEN)

(DEFPROP CDAADR (D . CAADR) OPEN)

(DEFPROP CDAAAR (D . CAAAR) OPEN)

(DEFPROP RPLACD HRRM# INST)

(DEFPROP RPLACA HRLM# INST)

(DEFPROP RPLACD HLLZS# INSTN)

(DEFPROP RPLACA HRRZS# INSTN)
```