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AMSTERDAM  

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REKENAFDELING

MR 61

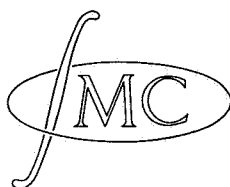
Text of the second ALGOL 60 translator for the X1

by

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and

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## 1. Preface

This report contains the text of the second ALGOL 60 translator program, written at the Mathematical Centre.

In [1] we gave a provisional user's description of the system. Complete descriptions, explanations etc. are being prepared. The text of the loader and of the so-called ALP-complex (a set of arithmetical and administrative routines, an interpreter using variable word length and variable precision) is not yet included here.

[1] MR 54, Voorlopige gebruiksaanwijzing van de tweede MC ALGOL-60 vertaler, by P.J.J. van de Laarschot and J. Nederkoorn, a report of the Mathematical Centre, Amsterdam, Jan. 1963.

[2] Revised report on the Algorithmic language ALGOL 60, edited by Peter Naur, Regnecentralen, Copenhagen, 1962.

Paragraph definitions for the X1 of the Mathematical Centre

|       |      |   |   |                             |
|-------|------|---|---|-----------------------------|
| DP EZ | 0    | X | 6 | begin translator            |
| DP EE | 4464 | E | Z | OBC6(output buffer class 6) |
| DP EF | 80   | E | E | begin prestack list and TLI |
| DP EH | 1024 | E | F | begin address pile          |
| DP EK | 320  | E | H | variable part of name list  |
| DP EL | 42   | X | 0 | length fixed address pile   |
| DP ER | 151  | X | 0 | length fixed part name list |
| DP ES | 9    | X | 3 | (27D16)                     |
| DP ET | 8192 | X | 0 | size of living store        |

DP ZE 0 E Z 0  
 DP ZF 16 Z E 2  
 DP ZH 31 Z F 3  
 DP ZK 29 Z H 5  
 DP ZL 9 Z K 2  
 DP ZR 0 Z L 6  
 DP ZS 17 Z R 1  
 DP ZT 4 Z S 1  
 DP ZW 10 Z T 0  
 DP ZU 7 Z W 0  
 DP ZY 14 Z U 16  
 DP ZN 23 Z Y 1  
 DP FZ 14 Z N 0  
 DP FE 17 F Z 1  
 DP FF 28 F E 1  
 DP FH 10 F F 0  
 DP FK 27 F H 0  
 DP FL 12 F K 0  
 DP FR 15 F L 0  
 DP FS 12 F R 0  
 DP FT 17 F S 0  
 DP FW 3 F T 1  
 DP FU 7 F W 0  
 DP FY 21 F U 0  
 DP FN 29 F Y 0  
 DP HZ 8 F N 1  
 DP HE 6 H Z 0  
 DP HF 22 H E 1  
 DP HH 29 H F 0  
 DP HK 24 H H 0  
 DP HL 31 H K 0  
 DP HR 31 H L 1  
 DP HS 15 H R 0  
 DP HT 10 H S 0  
 DP HW 18 H T 0  
 DP HU 29 H W 0  
 DP HY 30 H U 0  
 DP HN 25 H Y 0  
 DP KZ 29 H N 1  
 DP KE 23 K Z 0  
 DP KF 15 K E 0  
 DP KH 6 K F 0  
 DP KK 23 K H 0  
 DP KL 3 K K 0  
 DP KR 3 K L 0  
 DP KS 15 K R 0

working space translator  
 RFS(read flexowr.symbol)  
 NAS(next ALGOL symbol)  
 NRS(next relevant symbol)  
 RUND(rd until next delim.)  
 SPS(start prescan)  
 FPL(fill prescan list)  
 APL(augment prescan list)  
 FTL(fill translator list)  
 PSP(prescan program)  
 Basic cycle  
begin  
 constants  
 LFN(look for name)  
 FNL(fill namelist)  
 + -  
 relational operators  
 multipl.op. and to the power  
 logical "not"  
 other log.operators  
 ? or stopcode  
go to  
if  
then  
else  
for  
do  
 distribution of ", "  
 :  
 distribution of "; "  
 distribution of " := "  
step  
until  
while  
 distribution of "("  
 distribution of ")"  
 opening square bracket  
 closing square bracket  
 opening string quote  
end  
own  
Boolean  
integer  
real  
array  
switch

DP KT 11 K S 0  
 DP KW 6 K T 0  
 DP KU 3 K W 0  
 DP KY 9 K U 0  
 DP KN 3 K Y 0  
 DP LZ 4 K N 0  
 DP LE 5 L Z 0  
 DP LF 23 L E 0  
 DP LH 26 L F 0  
 DP LK 11 L H 1  
 DP LL 19 L K 0  
 DP LR 22 L L 0  
 DP LS 0 L R 2  
 DP LT 7 L S 0  
 DP LW 4 L T 1  
 DP LU 6 L W 0  
 DP LY 23 L U 1  
 DP RE 0 L Y 1  
 DP RF 24 R E 0  
 DP RH 28 R F 0  
 DP RK 16 R H 0  
 DP RL 8 R K 0  
 DP RR 17 R L 0  
 DP RS 16 R R 0  
 DP RT 12 R S 0  
 DP RW 11 R T 0  
 DP RU 17 R W 0  
 DP RY 6 R U 0  
 DP RN 23 R Y 0  
 DP SZ 19 R N 0  
 DP SE 20 S Z 1  
 DP SF 26 S E 1  
 DP SH 30 S F 0  
 DP SK 29 S H 1  
 DP SL 27 S K 1  
 DP SR 2 S L 1  
 DP SS 12 S R 0  
 DP ST 21 S S 0  
 DP SW 12 S T 0  
 DP SU 13 S W 0  
 DP SY 10 S U 0  
 DP SN 3 S Y 1  
 DP TZ 10 S N 0  
 DP TE 21 T Z 0

procedure  
string  
label  
value  
 require  
 put  
 PCP(prepare compl.parameter)  
 NNP(name and number process.)  
 name processor  
 number processor  
 backward scanner I  
 " " " II  
 " " " III  
 " " " IV  
 implicit jumps  
 procedure identifiers  
 array identifiers  
 labels and switches  
 conditional expressions  
 for statements  
 conditional statements  
 end of statement  
 IPW(insert parameter word)  
 "(" or formal parameter part  
 "{" in expressions  
 backward scanner V  
 punch tape feed  
 autostarts  
 type stop and line number  
 start translation  
 INB(introduction new block) I  
 simple block introduction  
 INB II, transfer from prescanlist  
 INB III, produce SCC  
 INB IV  
 TR(transport)  
 switches and labels in INB  
 procedures in INB  
 extension input program (DU)  
 ";" after formal par. part  
 ";" after specification  
 ";" after value part  
 ";" after switch declaration  
 ";" after array declaration

DP TF 6 T E 0  
 DP TH 7 T F 0  
 DP TK 8 T H 0  
 DP TL 17 T K 0  
 DP TR 27 T L 4  
 DP TS 18 T R 0  
 DP TT 0 T S 1  
 DP TW 4 T T 1  
 DP TU 19 T W 0  
 DP TY 9 T U 0  
 DP TN 22 T Y 0  
 DP WZ 9 T N 0  
 DP WE 7 W Z 0  
 DP WF 16 W E 0  
 DP WH 24 W F 0  
 DP WK 30 W H 0  
 DP WL 27 W K 0  
 DP WR 17 W L 0  
 DP WS 18 W R 2  
 DP WT 11 W S 1  
 DP WW 8 W T 0  
 DP UZ 22 W W 0  
 DP UE 16 U Z 0  
 DP UF 0 U E 1  
 DP UH 22 U F 0  
 DP UK 25 U H 1  
 DP UL 0 E E 0  
 DP UR 23 U K 1  
 DP YZ 31 U R 0  
 DP YE 13 Y Z 0  
 DP RZ 0 Y E 6  
 DP LN 0 R Z 2

";" after variable decl.  
 "," in value list  
 "," formal par. separator  
 "," specification separator  
 "," array segment separ.  
 "," switch list separator  
 "," type list separator  
 FNC(fill name code) I  
 "," actual par. separator  
 "," for list separator  
 "," index separator  
 "," bound pair separator  
 ")" after formal parameter  
 ")" after actual parameter  
 := in switch declaration  
 := in for statement  
 PSE(prepare switch element)  
 SAP(simple actual parameter)  
 TAP(translate act.parameter)  
 TPW(tail of parameter word)  
 FNC II(fill name code arrays)  
 working space output  
 FOT(fill object tape)  
 constants of output program  
 AIB(add imparity bit)  
 AOB(administration output )  
 OBC6(output buffer class 6)  
 punch end of object tape  
 constants  
 constants  
 fixed contents address pile  
 fixed contents name list

extension input program; read directive DU

|    |      |    |    |     |     |
|----|------|----|----|-----|-----|
|    | DA   | 24 | X  | 2   |     |
|    | DI   |    |    |     |     |
| 24 | 2T   | 0  | S  | W   | 0 A |
|    | DA   | 0  | W  | 0   |     |
| 0  | 2S   | 2  | W  | 0   | A   |
| 1  | 2T   | 8  | D  | 9   | A   |
| 2  | 6T   | 21 | D  | 514 |     |
| 3  | 2S   | 0  |    |     | A   |
| 4  | 6S   | 31 | X  | 0   |     |
| 5  | 2Y   | 1  | X  | 16  |     |
| 6  | U 1A | 2  |    |     | A P |
| 7  | 6A   | 24 | X  | 0   |     |
| 8  | Y 2T | 27 | D  | 12  | A   |
| 9  | 2S   | 31 | X  | 0   |     |
| 10 | OP   | 1  | SS |     |     |
| 11 | OS   | 24 | X  | 0   |     |
| 12 | 2T   | 4  | W  | 0   | A   |
|    | DC   |    |    |     |     |
|    | DO   |    |    |     |     |

RFS (read flexowriter symbol)

|    | DA    | O    | Z | F  | O   |
|----|-------|------|---|----|-----|
| 0  | 2B    | 0    |   | E  | O Z |
| 1  | 2B    | 1    |   |    | A   |
| 2  | Y 6B  | 0    |   | E  | O   |
| 3  | 2Z    | 1    |   | X  | 16  |
| 4  | 6S    | 24   |   | X  | O Z |
| 5  | Y 6S  | 1    |   | E  | O   |
| 6  | Y 2T  | 3    |   | F  | O A |
| 7  | U OLS | 124  |   |    | A Z |
| 8  | Y 2T  | 5    |   | F  | O A |
| 9  | U OLS | 122  |   |    | A Z |
| 10 | Y 2T  | 5    |   | F  | O A |
| 11 | U OLS | 127  |   |    | A Z |
| 12 | Y 2T  | 3    |   | F  | O A |
| 13 | U OLS | 62   |   |    | A Z |
| 14 | N 1S  | 16   |   |    | A Z |
| 15 | Y 2T  | 21   |   | F  | O A |
| 16 | 1S    | 10   |   |    | A Z |
| 17 | Y 4B  | 2    |   | E  | O   |
| 18 | Y 2T  | 21   |   | F  | O A |
| 19 | 2T    | 26   |   | F  | 3 A |
| 20 | Y 7Y  | 1003 |   | C  | O   |
| 21 | 2A    | 1    |   | E  | O   |
| 22 | 2S    | 24   |   | X  | O   |
| 23 | OLA   | 124  |   |    | A Z |
| 24 | Y OS  | 129  |   |    | A   |
| 25 | 2A    | 0    |   |    | A   |
| 26 | OD    | 3    |   |    | A   |
| 27 | 4P    |      |   | SB |     |
| 28 | 2S    | 4    |   | F  | 1 B |
| 29 | 2P    | 3    |   | AA |     |
| 30 | 4P    |      |   | AB |     |
| 31 | 3P    | 0    |   | SS | B   |

initial state ?

LC

case definition

DC  
DO

DA O Z F 1

DI

|   |       |      |     |     |
|---|-------|------|-----|-----|
| 0 | 2LS   | 255  |     | A   |
| 1 | U OLS | 63   |     | A Z |
| 2 | Y 7Y  | 1002 | C O |     |
| 3 | 2T    | 8    | X O | E   |

DN

|    |           |
|----|-----------|
| 4  | +131391   |
| 5  | +4129855  |
| 6  | +526143   |
| 7  | +8011583  |
| 8  | +10698559 |
| 9  | +4152639  |
| 10 | +4129599  |
| 11 | +4130309  |
| 12 | +7801151  |
| 13 | +4144959  |
| 14 | +16191    |
| 15 | +1916735  |
| 16 | +2105151  |
| 17 | +2309951  |
| 18 | +4144959  |
| 19 | +4144959  |
| 20 | +1854015  |
| 21 | +4136511  |
| 22 | +2236735  |
| 23 | +5848895  |
| 24 | +7749439  |
| 25 | +4145471  |
| 26 | +4134207  |
| 27 | +4134935  |
| 28 | +4135743  |
| 29 | +4144959  |
| 30 | +4144959  |
| 31 | +4133907  |

DC

DO

DA O Z F 2

DN

0 +4144918  
1 +4135449  
2 +4151103  
3 +4144959  
4 +723519  
5 +4132159  
6 +1118271  
7 +5783359  
8 +4144959  
9 +4145215  
10 +4131903  
11 +4132622  
12 +4133439  
13 +4144959  
14 +4144959  
15 +4345407  
16 +4147263  
17 +6448447  
18 +8011583  
19 +10633023  
20 +4152639  
21 +4145983  
22 +4154459  
23 +7824191  
24 +4144959  
25 +5062463  
26 +3686207  
27 +3881535  
28 +4079423  
29 +4144959  
30 +4144959  
31 +3622463

DC

DO

DA 0 Z F 3

DN

0 +4143423  
1 +4013119  
2 +7880511  
3 +7749439  
4 +4148287  
5 +4141119  
6 +4141874  
7 +4142655  
8 +4144959  
9 +4144959  
10 +4140846  
11 +4144945  
12 +4142388  
13 +4160063  
14 +4144959  
15 +2499903  
16 +4139071  
17 +2894655  
18 +5914431  
19 +4144959  
20 +4159807  
21 +4138815  
22 +4139561  
23 +4140351  
24 +4144959  
25 +4144959

DI

26 2S 24 X 0  
27 U 1S 11 A Z  
28 Y 2T 21 Z F O A  
29 2A 1 Z E O Z  
30 2T 20 Z F O A

DC

DO

NAS( next ALGOL symbol into S )

|    | DA    | O   | Z  | H | O   |                 |
|----|-------|-----|----|---|-----|-----------------|
|    | DI    |     |    |   |     |                 |
| 0  | 2B    | 0   | E  | O | Z   | initial state ? |
| 1  | N 2T  | 5   | H  | O | A   |                 |
| 2  | 2A    | 0   |    |   | A   |                 |
| 3  | 6A    | 3   | E  | O |     | QC              |
| 4  | 6A    | 4   | E  | O |     | stock           |
| 5  | 3S    | 4   | E  | O | P   |                 |
| 6  | Y 6S  | 4   | E  | O |     |                 |
| 7  | Y 2T  | 9   | H  | O | A   |                 |
| 8  | 6T    | 0   | F  | O | O   | RFS             |
| 9  | U OLS | 90  |    |   | A Z |                 |
| 10 | Y 2T  | 23  | H  | O | A   |                 |
| 11 | U OLS | 162 |    |   | A Z |                 |
| 12 | Y 2T  | 29  | H  | O | A   |                 |
| 13 | U OLS | 163 |    |   | A Z |                 |
| 14 | Y 2T  | 20  | H  | 1 | A   |                 |
| 15 | 2A    | 3   | E  | O | Z   |                 |
| 16 | N 2T  | 10  | X  | O | E   |                 |
| 17 | 4P    |     | SA |   |     |                 |
| 18 | U OLA | 93  |    |   | A Z |                 |
| 19 | N 1A  | 118 |    |   | A Z |                 |
| 20 | N 1A  | 1   |    |   | A Z |                 |
| 21 | Y 2T  | 5   | H  | O | A   |                 |
| 22 | 2T    | 10  | X  | O | E   |                 |
| 23 | 6T    | 0   | F  | O | O   | RFS             |
| 24 | U OLS | 72  |    |   | A Z |                 |
| 25 | N 7S  | 4   | E  | O |     |                 |
| 26 | N 2S  | 90  |    |   | A   |                 |
| 27 | Y 2S  | 92  |    |   | A   |                 |
| 28 | 2T    | 10  | X  | O | E   |                 |
| 29 | 6T    | 0   | F  | O | O   | RFS             |
| 30 | U OLS | 77  |    |   | A Z |                 |
| 31 | Y 2S  | 69  |    |   | A   |                 |
|    | DC    |     |    |   |     |                 |
|    | DO    |     |    |   |     |                 |

|    | DA    | O    | Z | H | 1   |
|----|-------|------|---|---|-----|
| 0  | Y 2T  | 10   | X | 0 | E   |
| 1  | U OLS | 72   |   |   | A Z |
| 2  | Y 2S  | 75   |   |   | A   |
| 3  | Y 2T  | 10   | X | 0 | E   |
| 4  | U OLS | 74   |   |   | A Z |
| 5  | Y 2S  | 102  |   |   | A   |
| 6  | 2A    | 1    |   |   | A   |
| 7  | Y 4A  | 3    | E | 0 |     |
| 8  | Y 2T  | 10   | X | 0 | E   |
| 9  | U OLS | 70   |   |   | A Z |
| 10 | Y 2S  | 103  |   |   | A   |
| 11 | Y 5A  | 3    | E | 0 |     |
| 12 | Y 2T  | 10   | X | 0 | E   |
| 13 | U OLS | 162  |   |   | A Z |
| 14 | Y 2T  | 29   | H | 0 | A   |
| 15 | 7Y    | 1004 | C | 0 |     |
| 16 | 6T    | 0    | F | 0 | O   |
| 17 | U OLS | 163  |   |   | A Z |
| 18 | Y 2T  | 16   | H | 1 | A   |
| 19 | 2T    | 9    | X | 0 | E   |
| 20 | 6T    | 16   | H | 1 | 1   |
| 21 | U 1S  | 70   |   |   | A Z |
| 22 | Y 2S  | 71   |   |   | A   |
| 23 | Y 2T  | 10   | X | 0 | E   |
| 24 | U 1S  | 76   |   |   | A E |
| 25 | Y 2T  | 30   | H | 1 | A   |
| 26 | U OLS | 72   |   |   | A Z |
| 27 | Y 2S  | 80   |   |   | A   |
| 28 | N OLS | 3    |   |   | A   |
| 29 | 2T    | 10   | X | 0 | E   |
| 30 | U OLS | 90   |   |   | A Z |
| 31 | Y 2S  | 68   |   |   | A   |
|    | DC    |      |   |   |     |
|    | DO    |      |   |   |     |

RFS

|    | DA    | O   | Z | H | 2 |     |
|----|-------|-----|---|---|---|-----|
|    | DI    |     |   |   |   |     |
| 0  | Y 2T  | 10  |   | X | 0 | E   |
| 1  | U OLS | 10  |   |   |   | A Z |
| 2  | Y 2S  | 110 |   |   |   | A   |
| 3  | Y 2B  | 4   |   |   |   | A   |
| 4  | Y 2T  | 13  |   | H | 5 | A Z |
| 5  | U OLS | 12  |   |   |   | A   |
| 6  | Y 2S  | 97  |   |   |   | A   |
| 7  | Y 2B  | 6   |   |   |   | A   |
| 8  | Y 2T  | 13  |   | H | 5 | A Z |
| 9  | U OLS | 13  |   |   |   | A   |
| 10 | Y 2S  | 86  |   |   |   | A   |
| 11 | Y 2B  | 1   |   |   |   | A   |
| 12 | Y 2T  | 13  |   | H | 5 | A Z |
| 13 | U OLS | 16  |   |   |   | A   |
| 14 | Y 2S  | 81  |   |   |   | A   |
| 15 | Y 2B  | 3   |   |   |   | A   |
| 16 | Y 2T  | 13  |   | H | 5 | A Z |
| 17 | U OLS | 21  |   |   |   | A   |
| 18 | Y 2S  | 114 |   |   |   | A   |
| 19 | Y 2B  | 4   |   |   |   | A   |
| 20 | Y 2T  | 13  |   | H | 5 | A Z |
| 21 | U OLS | 24  |   |   |   | A   |
| 22 | Y 2S  | 106 |   |   |   | A   |
| 23 | Y 2B  | 2   |   |   |   | A   |
| 24 | Y 2T  | 13  |   | H | 5 | A Z |
| 25 | U OLS | 25  |   |   |   | A   |
| 26 | Y 2S  | 112 |   |   |   | A   |
| 27 | Y 2B  | 8   |   |   |   | A   |
| 28 | Y 2T  | 13  |   | H | 5 | A Z |
| 29 | U OLS | 27  |   |   |   | A   |
| 30 | Y 2S  | 109 |   |   |   | A   |
| 31 | Y 2B  | 3   |   |   |   | A   |
|    | DC    |     |   |   |   |     |
|    | DO    |     |   |   |   |     |

|    | DA    | O    | Z | H | 3 |     |
|----|-------|------|---|---|---|-----|
|    | DI    |      |   |   |   |     |
| 0  | Y 2T  | 13   |   | H | 5 | A   |
| 1  | U OLS | 30   |   |   |   | A Z |
| 2  | Y 2S  | 95   |   |   |   | A   |
| 3  | Y 2B  | 4    |   |   |   | A   |
| 4  | Y 2T  | 13   |   | H | 5 | A   |
| 5  | U OLS | 31   |   |   |   | A Z |
| 6  | Y 2S  | 115  |   |   |   | A   |
| 7  | Y 2B  | 4    |   |   |   | A   |
| 8  | Y 2T  | 13   |   | H | 5 | A   |
| 9  | U OLS | 32   |   |   |   | A Z |
| 10 | Y 2S  | 96   |   |   |   | A   |
| 11 | Y 2B  | 4    |   |   |   | A   |
| 12 | Y 2T  | 13   |   | H | 5 | A   |
| 13 | U OLS | 38   |   |   |   | A Z |
| 14 | Y 2S  | 107  |   |   |   | A   |
| 15 | Y 2B  | 6    |   |   |   | A   |
| 16 | Y 2T  | 13   |   | H | 5 | A   |
| 17 | 6S    | 4    |   | E | 0 |     |
| 18 | 6T    | 0    |   | F | 0 | O   |
| 19 | OLS   | 163  |   |   |   | A Z |
| 20 | N 7Y  | 1005 |   | C | 0 |     |
| 21 | 6T    | 16   |   | H | 1 | 1   |
| 22 | U OLS | 10   |   |   |   | A Z |
| 23 | Y 2S  | 117  |   |   |   | A   |
| 24 | Y 2B  | 3    |   |   |   | A   |
| 25 | Y 2T  | 13   |   | H | 5 | A   |
| 26 | U OLS | 14   |   |   |   | A Z |
| 27 | Y 2S  | 104  |   |   |   | A   |
| 28 | Y 2B  | 3    |   |   |   | A   |
| 29 | Y 2T  | 13   |   | H | 5 | A   |
| 30 | U OLS | 15   |   |   |   | A Z |
| 31 | Y 2S  | 82   |   |   |   | A   |
|    | DC    |      |   |   |   |     |
|    | DO    |      |   |   |   |     |

RFS

|    | DA    | O   | Z | H | 4 |     |
|----|-------|-----|---|---|---|-----|
|    | DI    |     |   |   |   |     |
| 0  | Y 2B  | 0   |   |   |   | A   |
| 1  | Y 2T  | 13  |   | H | 5 | A   |
| 2  | U OLS | 21  |   |   |   | A Z |
| 3  | Y 2S  | 84  |   |   |   | A   |
| 4  | Y 2B  | 2   |   |   |   | A   |
| 5  | Y 2T  | 13  |   | H | 5 | A   |
| 6  | U OLS | 32  |   |   |   | A Z |
| 7  | Y 2S  | 111 |   |   |   | A   |
| 8  | Y 2B  | 4   |   |   |   | A   |
| 9  | Y 2T  | 13  |   | H | 5 | A   |
| 10 | U OLS | 17  |   |   |   | A Z |
| 11 | Y 2S  | 83  |   |   |   | A   |
| 12 | Y 2B  | 2   |   |   |   | A   |
| 13 | Y 2T  | 13  |   | H | 5 | A   |
| 14 | U OLS | 27  |   |   |   | A Z |
| 15 | Y 2S  | 116 |   |   |   | A   |
| 16 | Y 2B  | 2   |   |   |   | A   |
| 17 | Y 2T  | 13  |   | H | 5 | A   |
| 18 | U OLS | 29  |   |   |   | A Z |
| 19 | Y 2T  | 4   |   | H | 5 | A   |
| 20 | 2S    | 4   |   | E | 0 |     |
| 21 | U OLS | 11  |   |   |   | A Z |
| 22 | Y 2S  | 107 |   |   |   | A   |
| 23 | Y 2B  | 5   |   |   |   | A   |
| 24 | Y 2T  | 13  |   | H | 5 | A   |
| 25 | U OLS | 15  |   |   |   | A Z |
| 26 | Y 2S  | 85  |   |   |   | A   |
| 27 | Y 2B  | 1   |   |   |   | A   |
| 28 | Y 2T  | 13  |   | H | 5 | A   |
| 29 | U OLS | 14  |   |   |   | A Z |
| 30 | Y 2S  | 105 |   |   |   | A   |
| 31 | Y 2B  | 1   |   |   |   | A   |
|    | DC    |     |   |   |   |     |
|    | DO    |     |   |   |   |     |

|    | DA |     | O    | Z | H  | 5 |     |
|----|----|-----|------|---|----|---|-----|
|    | DI |     |      |   |    |   |     |
| 0  | Y  | 2T  | 13   |   | H  | 5 | A   |
| 1  |    | 2S  | 108  |   |    |   | A   |
| 2  |    | 2B  | 5    |   |    |   | A   |
| 3  |    | 2T  | 13   |   | H  | 5 | A   |
| 4  |    | 6T  | 0    |   | F  | 0 | O   |
| 5  | U  | OLS | 163  |   |    |   | A Z |
| 6  | N  | 7Y  | 1005 |   | C  | 0 |     |
| 7  |    | 6T  | 16   |   | H  | 1 | 1   |
| 8  |    | OLS | 14   |   |    |   | A Z |
| 9  | Y  | 2S  | 94   |   |    |   | A   |
| 10 | Y  | 2B  | 1    |   |    |   | A   |
| 11 | N  | 2S  | 113  |   |    |   | A   |
| 12 | N  | 2B  | 3    |   |    |   | A   |
| 13 |    | 6B  | 5    |   | E  | 0 | Z   |
| 14 |    | 6S  | 4    |   | E  | 0 |     |
| 15 | Y  | 2T  | 23   |   | H  | 5 | A   |
| 16 |    | 6T  | 0    |   | F  | 0 | O   |
| 17 | U  | OLS | 163  |   |    |   | A Z |
| 18 | N  | 7Y  | 1006 |   | C  | 0 |     |
| 19 |    | 6T  | 16   |   | H  | 1 | 1   |
| 20 |    | 2B  | 1    |   |    |   | A   |
| 21 |    | 5B  | 5    |   | E  | 0 | Z   |
| 22 | N  | 2T  | 16   |   | H  | 5 | A   |
| 23 |    | 2A  | 4    |   | E  | 0 |     |
| 24 | U  | 1A  | 81   |   |    |   | A Z |
| 25 | Y  | 1S  | 29   |   |    |   | A Z |
| 26 |    | 4P  |      |   | AS |   |     |
| 27 | Y  | 2T  | 13   |   | H  | 5 | A   |
| 28 |    | 2T  | 10   |   | X  | 0 | E   |
|    | DC |     |      |   |    |   |     |
|    | DO |     |      |   |    |   |     |

RFS

RFS

|    | DA   |      | O | Z | K | O |                           |
|----|------|------|---|---|---|---|---------------------------|
|    | DI   |      |   |   |   |   |                           |
| 0  | 2B   | 0    | E | 0 | Z |   | initial state ?           |
| 1  | N 2T | 6    | K | 0 | A |   |                           |
| 2  | 6B   | 6    | E | 0 |   |   | CFLA                      |
| 3  | 6B   | 7    | E | 0 |   |   | stock                     |
| 4  | 6T   | 0    | H | 0 | 2 |   | NAS                       |
| 5  | 2T   | 9    | K | 0 | A |   |                           |
| 6  | 3A   | 7    | E | 0 |   | P |                           |
| 7  | Y 3S | 7    | E | 0 |   |   |                           |
| 8  | N 6T | 0    | H | 0 | 2 |   | NAS                       |
| 9  | 6S   | 8    | E | 0 |   |   | last relevant symbol read |
| 10 | 2A   | 0    |   |   | A |   |                           |
| 11 | 6A   | 7    | E | 0 |   |   |                           |
| 12 | 2A   | 3    | E | 0 | Z |   |                           |
| 13 | N 2T | 6    | K | 2 | A |   |                           |
| 14 | U 1S | 120  |   |   | A | Z |                           |
| 15 | N 1S | 121  |   |   | A | Z |                           |
| 16 | Y 7Y | 1007 | C | 0 |   |   |                           |
| 17 | 2S   | 8    | E | 0 |   |   |                           |
| 18 | U 1S | 97   |   |   | A | Z |                           |
| 19 | N 2T | 29   | K | 0 | A |   |                           |
| 20 | 2A   | 6    | E | 0 | Z |   |                           |
| 21 | N 7Y | 1008 | C | 0 |   |   |                           |
| 22 | 6T   | 0    | H | 0 | 2 |   | NAS                       |
| 23 | U 1S | 91   |   |   | A | Z |                           |
| 24 | N 2T | 22   | K | 0 | A |   |                           |
| 25 | 2A   | 3    | E | 0 | Z |   |                           |
| 26 | N 2T | 22   | K | 0 | A |   |                           |
| 27 | 6T   | 0    | H | 0 | 2 |   | NAS                       |
| 28 | 2T   | 9    | K | 0 | A |   |                           |
| 29 | U 1S | 104  |   |   | A | Z |                           |
| 30 | N 1S | 91   |   |   | A | Z |                           |
| 31 | Y 6A | 6    | E | 0 |   |   |                           |
|    | DC   |      |   |   |   |   |                           |
|    | DO   |      |   |   |   |   |                           |

|    | DA   | O    | Z | K     | 1   |     |
|----|------|------|---|-------|-----|-----|
|    | DI   |      |   |       |     |     |
| 0  | Y 2T | 6    |   | K 2   | A   |     |
| 1  | 2S   | 8    |   | E 0   |     |     |
| 2  | U 1S | 105  |   |       | A Z |     |
| 3  | N 2T | 15   |   | K 1   | A   |     |
| 4  | 6T   | 0    |   | H 0 2 |     | NAS |
| 5  | U 1S | 91   |   |       | A Z |     |
| 6  | Y 2T | 13   |   | K 1   | A   |     |
| 7  | U 1S | 105  |   |       | A Z |     |
| 8  | Y 2T | 13   |   | K 1   | A   |     |
| 9  | U 1S | 84   |   |       | A Z |     |
| 10 | Y 2T | 13   |   | K 1   | A   |     |
| 11 | U 1S | 122  |   |       | A Z |     |
| 12 | N 2T | 4    |   | K 1   | A   |     |
| 13 | 7S   | 7    |   | E 0   |     |     |
| 14 | 2T   | 4    |   | K 2   | A   |     |
| 15 | U 1S | 99   |   |       | A Z |     |
| 16 | N 2T | 4    |   | K 2   | A   |     |
| 17 | 6T   | 0    |   | H 0 2 |     | NAS |
| 18 | U 1S | 63   |   |       | A P |     |
| 19 | Y 7S | 7    |   | E 0   |     |     |
| 20 | Y 2T | 4    |   | K 2   | A   |     |
| 21 | U 1S | 9    |   |       | A P |     |
| 22 | N 7Y | 1009 |   | C 0   |     |     |
| 23 | 6T   | 0    |   | H 0 2 |     | NAS |
| 24 | U 1S | 63   |   |       | A P |     |
| 25 | Y 2T | 29   |   | K 1   | A   |     |
| 26 | U 1S | 9    |   |       | A P |     |
| 27 | N 7Y | 1009 |   | C 0   |     |     |
| 28 | 2T   | 23   |   | K 1   | A   |     |
| 29 | U 1S | 90   |   |       | A Z |     |
| 30 | N 7Y | 1010 |   | C 0   |     |     |
| 31 | 6T   | 0    |   | H 0 2 |     | NAS |
|    | DC   |      |   |       |     |     |
|    | DO   |      |   |       |     |     |

|   |    |    |      |   |   |   |     |
|---|----|----|------|---|---|---|-----|
|   | DA |    | O    | Z | K | 2 |     |
|   | DI |    |      |   |   |   |     |
| 0 | U  | 1S | 98   |   |   |   | A Z |
| 1 | N  | 7Y | 1011 | C | O |   |     |
| 2 |    | 2S | 87   |   |   |   | A   |
| 3 |    | 6S | 8    | E | O |   |     |
| 4 |    | 2A | 1    |   |   |   | A   |
| 5 |    | 6A | 6    | E | O |   |     |
| 6 |    | 2A | 8    | E | O |   |     |
| 7 |    | 4A | 5    | E | 1 |   |     |
| 8 |    | 2T | 11   | X | O |   | E   |
|   | DC |    |      |   |   |   |     |
|   | DO |    |      |   |   |   |     |

RUND( read until next delimiter)

|    | DA   |    | O  | Z | L | O |                |
|----|------|----|----|---|---|---|----------------|
|    | DI   |    |    |   |   |   |                |
| 0  | 6T   | 0  | K  | 0 | 3 |   | NRS            |
| 1  | 2S   | 12 | E  | 0 |   |   | Flag word      |
| 2  | 2LS  | 31 |    |   | A |   |                |
| 3  | 5S   | 12 | E  | 0 |   |   |                |
| 4  | U 1A | 63 |    |   | A | P |                |
| 5  | U 1A | 9  |    |   | A | E |                |
| 6  | Y 2T | 25 | L  | 1 | A |   | non-identifier |
| 7  | 2S   | 2  |    |   | A |   |                |
| 8  | 4S   | 12 | E  | 0 |   |   |                |
| 9  | 2S   | 0  |    |   | A |   |                |
| 10 | 6S   | 13 | E  | 0 |   |   |                |
| 11 | 2B   | 19 | E  | 0 |   |   | NLSC           |
| 12 | 6B   | 20 | E  | 0 |   |   | TNLSC          |
| 13 | 3S   | 0  |    |   | A |   |                |
| 14 | 1P   | 6  | SA |   |   |   |                |
| 15 | 2B   | 20 | E  | 0 |   |   |                |
| 16 | 6S   | 0  | X  | 0 | B |   |                |
| 17 | 6T   | 0  | K  | 0 | 3 |   | NRS            |
| 18 | U 1A | 63 |    |   | A | P |                |
| 19 | Y 2T | 31 | L  | 0 | A |   |                |
| 20 | 2S   | 1  |    |   | A |   |                |
| 21 | 4S   | 13 | E  | 0 |   |   |                |
| 22 | 2S   | 13 | E  | 0 |   |   |                |
| 23 | 2LS  | 3  |    |   | A | Z |                |
| 24 | 2B   | 20 | E  | 0 |   |   |                |
| 25 | N 2S | 0  | X  | 0 | B |   |                |
| 26 | N 2T | 14 | L  | 0 | A |   |                |
| 27 | OB   | 1  |    |   | A |   |                |
| 28 | U 1B | 23 | E  | 0 |   | P |                |
| 29 | N 2T | 12 | L  | 0 | A |   |                |
| 30 | 7P   |    |    |   |   |   |                |
| 31 | U 1A | 88 |    |   | A | Z |                |
|    | DC   |    |    |   |   |   |                |
|    | DO   |    |    |   |   |   |                |

|    | DA |     | O    | Z | L | 1 |     |
|----|----|-----|------|---|---|---|-----|
|    | DI |     |      |   |   |   |     |
| 0  | N  | 1A  | 89   |   |   |   | A Z |
| 1  | Y  | 7Y  | 1012 | C | O |   |     |
| 2  |    | 2A  | 8    | E | O |   |     |
| 3  |    | 2B  | 1    |   |   |   | A   |
| 4  | U  | 1A  | 104  |   |   |   | A Z |
| 5  | Y  | 4B  | 9    | E | O |   |     |
| 6  | U  | 1A  | 105  |   |   |   | A Z |
| 7  | Y  | 5B  | 9    | E | O |   |     |
| 8  |    | 2T  | 13   | X | O |   | E   |
| 9  | U  | 1LA | 89   |   |   |   | A Z |
| 10 | Y  | 6S  | 16   | E | O |   |     |
| 11 |    | 2T  | 13   | L | 1 |   | A   |
| 12 |    | 6T  | 0    | K | O | 3 |     |
| 13 | U  | 1LA | 88   |   |   |   | A Z |
| 14 | N  | 2T  | 21   | L | 1 |   | A   |
| 15 |    | 2S  | 20   | E | 1 |   | Z   |
| 16 | Y  | 7Y  | 1012 | C | O |   |     |
| 17 |    | 6S  | 18   | E | O |   |     |
| 18 |    | 2S  | 0    |   |   |   | A   |
| 19 |    | 6S  | 20   | E | 1 |   |     |
| 20 |    | 2T  | 13   | L | 2 |   | A   |
| 21 | U  | 1LA | 89   |   |   |   | A Z |
| 22 | Y  | 2T  | 5    | L | 3 |   | A   |
| 23 | U  | 1A  | 9    |   |   |   | A P |
| 24 |    | 2T  | 12   | X | O |   | Z   |
| 25 |    | 2B  | 0    |   |   |   | A   |
| 26 |    | 6B  | 16   | E | O |   |     |
| 27 |    | 6B  | 15   | E | O |   |     |
| 28 |    | 6B  | 18   | E | O |   |     |
| 29 |    | 6B  | 17   | E | O |   |     |
| 30 |    | 2S  | 1    |   |   |   | A   |
| 31 |    | 6S  | 20   | E | 1 |   |     |

exit RUND

NRS

DC  
DO

|    | DA   |      | O | Z | L | 2 |               |
|----|------|------|---|---|---|---|---------------|
|    | DI   |      |   |   |   |   |               |
| 0  | 6T   | 9    | L | 1 | 4 |   |               |
| 1  | Y 2T | 25   | L | 2 | A |   | non-number    |
| 2  | 2S   | 31   | L | 5 |   |   |               |
| 3  | 1S   | 15   | E | 0 |   | P |               |
| 4  | Y 2S | 16   | E | 0 |   |   |               |
| 5  | Y OX | 10   |   |   | A |   |               |
| 6  | Y 6S | 16   | E | 0 |   |   |               |
| 7  | Y 2S | 15   | E | 0 |   |   |               |
| 8  | Y OX | 10   |   |   | A |   |               |
| 9  | Y 6S | 15   | E | 0 |   |   |               |
| 10 | 3S   | 18   | E | 0 |   |   |               |
| 11 | N OS | 1    |   |   | A |   |               |
| 12 | 4S   | 17   | E | 0 |   |   |               |
| 13 | 6T   | 12   | L | 1 | 4 |   |               |
| 14 | N 2T | 2    | L | 2 | A |   |               |
| 15 | U 1A | 63   |   |   | A | P |               |
| 16 | N 7Y | 1014 | C | 0 |   |   |               |
| 17 | 2S   | 18   | E | 0 |   | Z |               |
| 18 | Y 2S | 15   | E | 0 |   | Z |               |
| 19 | N 2S | 9    |   |   | A |   |               |
| 20 | N 4S | 12   | E | 0 |   |   |               |
| 21 | N 2T | 0    | L | 4 | A |   |               |
| 22 | 2S   | 13   |   |   | A |   |               |
| 23 | 4S   | 12   | E | 0 |   |   |               |
| 24 | 2T   | 3    | L | 1 | A |   |               |
| 25 | U 1A | 117  |   |   | A | Z | logical value |
| 26 | Y 2S | 1    |   |   | A |   |               |
| 27 | N 2S | 0    |   |   | A |   |               |
| 28 | U 1A | 115  |   |   | A | E |               |
| 29 | Y 2T | 3    | L | 1 | A |   | to exit       |
| 30 | 6S   | 16   | E | 0 |   |   |               |
| 31 | 2S   | 5    |   |   | A |   |               |
|    | DC   |      |   |   |   |   |               |
|    | DO   |      |   |   |   |   |               |

|    | DA   |      | O  | Z | L | 3 |     |
|----|------|------|----|---|---|---|-----|
|    | DI   |      |    |   |   |   |     |
| 0  | 4S   | 12   | E  | 0 |   |   |     |
| 1  | 6T   | 0    | K  | 0 | 3 |   | NRS |
| 2  | U 1A | 76   |    | A | P |   |     |
| 3  | N 7Y | 1013 | C  | 0 |   |   |     |
| 4  | 2T   | 31   | L  | 0 | A |   |     |
| 5  | 2S   | 9    |    | A |   |   |     |
| 6  | 4S   | 12   | E  | 0 |   |   |     |
| 7  | 6T   | 0    | K  | 0 | 3 |   | NRS |
| 8  | U 1A | 64   |    | A | Z |   |     |
| 9  | Y 6T | 0    | K  | 0 | 3 |   | NRS |
| 10 | Y 2T | 18   | L  | 3 | A |   |     |
| 11 | U 1A | 65   |    | A | Z |   |     |
| 12 | N 2T | 18   | L  | 3 | A |   |     |
| 13 | 6T   | 0    | K  | 0 | 3 |   | NRS |
| 14 | U 1A | 9    |    | A | P |   |     |
| 15 | Y 7Y | 1015 | C  | 0 |   |   |     |
| 16 | 3A   | 8    | E  | 0 |   |   |     |
| 17 | 2T   | 20   | L  | 3 | A |   |     |
| 18 | U 1A | 9    |    | A | P |   |     |
| 19 | Y 7Y | 1015 | C  | 0 |   |   |     |
| 20 | 6A   | 18   | E  | 0 |   |   |     |
| 21 | 2T   | 27   | L  | 3 | A |   |     |
| 22 | 2S   | 18   | E  | 0 | P |   |     |
| 23 | N 5P |      | AA |   |   |   |     |
| 24 | OX   | 10   |    | A | Z |   |     |
| 25 | N 2T | 17   | L  | 5 | A |   |     |
| 26 | 6S   | 18   | E  | 0 |   |   |     |
| 27 | 6T   | 0    | K  | 0 | 3 |   | NRS |
| 28 | U 1A | 9    |    | A | P |   |     |
| 29 | N 2T | 22   | L  | 3 | A |   |     |
| 30 | 2S   | 18   | E  | 0 |   |   |     |
| 31 | 4S   | 17   | E  | 0 |   |   |     |
|    | DC   |      |    |   |   |   |     |
|    | DO   |      |    |   |   |   |     |

|    | DA   | O    | Z   | L | 4 |   |
|----|------|------|-----|---|---|---|
|    | DI   |      |     |   |   |   |
| 0  | 3A   | 15   | E   | 0 |   |   |
| 1  | 3S   | 16   | E   | 0 |   |   |
| 2  | 6P   |      | AS  |   |   | Z |
| 3  | Y 7S | 17   | E   | 0 |   |   |
| 4  | Y 2T | 23   | L   | 5 | A |   |
| 5  | 1B   | 2100 |     |   | A |   |
| 6  | 7B   | 18   | E   | 0 |   |   |
| 7  | 2B   | 8    |     |   | A |   |
| 8  | U 2A | 17   | E   | 0 |   | P |
| 9  | N 2T | 21   | L   | 4 | A |   |
| 10 | 7A   | 15   | E   | 0 |   |   |
| 11 | 2T   | 3    | L   | 5 | A |   |
| 12 | U OA | 15   | D14 | B | P |   |
| 13 | N 3P | 1    | AS  |   |   |   |
| 14 | OD   | 15   | D14 | B |   |   |
| 15 | 7S   | 15   | E   | 0 |   |   |
| 16 | OD   | 15   | D14 | B |   |   |
| 17 | 3A   | 23   | D14 | B |   |   |
| 18 | N OA | 1    |     | A |   |   |
| 19 | 4A   | 18   | E   | 0 |   |   |
| 20 | 3A   | 15   | E   | 0 |   |   |
| 21 | U OB | 17   | E   | 0 |   | P |
| 22 | Y 3B | 17   | E   | 0 |   | Z |
| 23 | N 4B | 17   | E   | 0 |   |   |
| 24 | N 2T | 12   | L   | 4 | A |   |
| 25 | 2T   | 7    | L   | 5 | A |   |
| 26 | 2X   | 15   | D14 | B |   |   |
| 27 | 3S   | 15   | E   | 0 |   |   |
| 28 | OX   | 15   | D14 | B |   |   |
| 29 | OP   | 1    | AS  |   |   | P |
| 30 | Y 1P | 1    | AS  |   |   |   |
| 31 | 7A   | 15   | E   | 0 |   |   |
|    | DC   |      |     |   |   |   |
|    | DO   |      |     |   |   |   |

|    | DA        | O    | Z | L   | 5   |   |
|----|-----------|------|---|-----|-----|---|
|    | DI        |      |   |     |     |   |
| 0  | 2A        | 23   |   | D14 | B   |   |
| 1  | N 1A      | 1    |   |     | A   |   |
| 2  | 4A        | 18   |   | E 0 |     |   |
| 3  | U 1B      | 17   |   | E 0 |     | P |
| 4  | Y 2B      | 17   |   | E 0 |     | Z |
| 5  | N 5B      | 17   |   | E 0 |     |   |
| 6  | N 2T      | 26   |   | L 4 | A   |   |
| 7  | 2S        | 18   |   | E 0 |     |   |
| 8  | U 3LS     | 4095 |   |     | A Z |   |
| 9  | N 2T      | 17   |   | L 5 | A   |   |
| 10 | 6S        | 17   |   | E 0 |     |   |
| 11 | 2S        | 1    |   |     | A   |   |
| 12 | 6S        | 18   |   | E 0 |     |   |
| 13 | 2A        | 8    |   | E 0 |     |   |
| 14 | U 1A      | 63   |   |     | A P |   |
| 15 | Y 2T      | 31   |   | L 0 | A   |   |
| 16 | 7Y        | 1014 |   | C 0 |     |   |
| 17 | 2S        | 29   |   | L 5 |     |   |
| 18 | 6S        | 15   |   | E 0 |     |   |
| 19 | 6S        | 16   |   | E 0 |     |   |
| 20 | 2S        | 4095 |   |     | A   |   |
| 21 | 6S        | 17   |   | E 0 |     |   |
| 22 | 2T        | 11   |   | L 5 | A   |   |
| 23 | 2S        | 30   |   | L 5 |     |   |
| 24 | 6S        | 15   |   | E 0 |     |   |
| 25 | 2S        | 0    |   |     | A   |   |
| 26 | 6S        | 16   |   | E 0 |     |   |
| 27 | 6S        | 17   |   | E 0 |     |   |
| 28 | 2T        | 11   |   | L 5 | A   |   |
|    | DN        |      |   |     |     |   |
| 29 | +67108863 |      |   |     |     |   |
| 30 | +33554432 |      |   |     |     |   |
| 31 | +6710885  |      |   |     |     |   |
|    | DC        |      |   |     |     |   |
|    | DO        |      |   |     |     |   |

SPS(start prescan)

|    | DA   | O   | Z | R   | O |     |
|----|------|-----|---|-----|---|-----|
|    | DI   |     |   |     |   |     |
| 0  | 2A   | 19  |   |     | A |     |
| 1  | 6Y   | 2   |   | X16 |   |     |
| 2  | OT   | 21  |   | D21 | P |     |
| 3  | 2A   | 0   |   |     | A |     |
| 4  | 2B   | 0   | E | E   | 0 | A   |
| 5  | 7A   | 0   |   | X   | 0 | B   |
| 6  | OB   | 1   |   |     |   | A   |
| 7  | U 1B | 0   | E | T   | 0 | A Z |
| 8  | N 2T | 5   | Z | R   | 0 | A   |
| 9  | 6A   | 0   |   | E   | 0 |     |
| 10 | 6A   | 2   |   | E   | 0 |     |
| 11 | 6A   | 5   |   | E   | 1 |     |
| 12 | 6A   | 9   |   | E   | 1 |     |
| 13 | 6A   | 9   |   | E   | 0 |     |
| 14 | 6A   | 11  |   | E   | 0 |     |
| 15 | 6A   | 30  |   | E   | 0 |     |
| 16 | 6A   | 14  |   | E   | 0 |     |
| 17 | 6A   | 3   |   | E   | 1 |     |
| 18 | 6A   | 4   |   | E   | 1 |     |
| 19 | 6A   | 2   |   | E   | 1 |     |
| 20 | 6A   | 7   |   | E   | 1 |     |
| 21 | 6A   | 11  |   | E   | 1 |     |
| 22 | 2A   | 3   |   | D   | 0 |     |
| 23 | 2LA  | 1   |   |     |   | A   |
| 24 | 6A   | 8   |   | E   | 1 |     |
| 25 | 2A   | 1   |   |     |   | A   |
| 26 | 6A   | 6   |   | E   | 1 |     |
| 27 | 2A   | 0   | E | F   | 0 | A   |
| 28 | 6A   | 29  | Z | E   | 0 |     |
| 29 | 6A   | 26  |   | E   | 0 |     |
| 30 | 2B   | 1-E | T | 0   | A |     |
| 31 | 6B   | 25  | Z | E   | 0 |     |
|    | DC   |     |   |     |   |     |
|    | DO   |     |   |     |   |     |

initial state  
LC  
sum check  
own-flag  
BEC  
OBC  
BC  
DECFLA  
round bracket c.  
square br. counter

LPSL

TLSC

PLIE

|    | DA | O     | Z | R | 1 |             |
|----|----|-------|---|---|---|-------------|
|    | DI |       |   |   |   |             |
| 0  | 6B | 23    | E | 0 |   | PLIB        |
| 1  | 1B | 1     |   |   | A |             |
| 2  | 6B | 1     | X | 0 | B |             |
| 3  | 2S | 0     | E | K | 0 | A           |
| 4  | 6S | 22    | Z | E | 0 | INLSC       |
| 5  | 6S | 19    | E | 0 |   | NLSC        |
| 6  | 6S | 27    | E | 0 |   | BAP         |
| 7  | 6T | 0     | T | 0 | 0 | APL         |
| 8  | 2S | 1     |   |   | A |             |
| 9  | 2B | 26    | E | 0 |   |             |
| 10 | 6S | 32767 | X | 0 | B |             |
| 11 | 6T | 18    | U | 3 | 1 | 6 * FTL(+o) |
| 12 | 2S | 11    | E | 0 |   |             |
| 13 | 6T | 0     | W | 0 | 0 | FTL(OBC)    |
| 14 | 3S | 0     |   |   | A |             |
| 15 | 6T | 0     | W | 0 | 0 | FTL(-O)     |
| 16 | 2T | 0     | U | 0 | A | PSP         |
|    | DC |       |   |   |   |             |
|    | DO |       |   |   |   |             |

FPL(fill prescan list)

|    | DA   | O     | Z | S  | O |     |
|----|------|-------|---|----|---|-----|
| 0  | 2S   | 0     |   |    |   | A   |
| 1  | 2T   | 3     |   | S  | O | A   |
| 2  | 2S   | 1     |   |    |   | A   |
| 3  | OS   | 11    |   | E  | O |     |
| 4  | OS   | 11    |   | E  | O |     |
| 5  | 6S   | 0     |   | X  | O |     |
| 6  | 2A   | 24    |   | E  | O |     |
| 7  | 2S   | 23    |   | E  | O | A   |
| 8  | 4P   |       |   | SB |   |     |
| 9  | 2S   | 0     |   | X  | O | B   |
| 10 | 5A   | 0     |   | X  | O | B   |
| 11 | 4T   | 8     |   | S  | O | O E |
| 12 | 1S   | 23    |   | E  | O |     |
| 13 | 1S   | 24    |   | E  | O |     |
| 14 | OS   | 1     |   |    |   | A   |
| 15 | 6S   | 0     |   | X  | O |     |
| 16 | 2B   | 23    |   | E  | O |     |
| 17 | 2T   | 23    |   | S  | O | A   |
| 18 | OB   | 24    |   | E  | O |     |
| 19 | 2S   | 0     |   | X  | O | B   |
| 20 | 1B   | 24    |   | E  | O |     |
| 21 | 6S   | 0     |   | X  | O | B   |
| 22 | OB   | 1     |   |    |   | A   |
| 23 | 4T   | 18    |   | S  | O | O E |
| 24 | 6B   | 22    |   | E  | O |     |
| 25 | 2B   | 20    |   | E  | O |     |
| 26 | U 1B | 19    |   | E  | O | Z   |
| 27 | 2S   | 0     |   | X  | O | B   |
| 28 | 2B   | 22    |   | E  | O |     |
| 29 | OB   | 24    |   | E  | O |     |
| 30 | 6S   | 32767 |   | X  | O | B   |
| 31 | Y 2T | 8     |   | X  | O | E   |
|    | DC   |       |   |    |   |     |
|    | DO   |       |   |    |   |     |

search proper block cell

shifting names in  
other block cells

"INLSC"

transfer name

|   | DA |    | O | Z | S | 1 |
|---|----|----|---|---|---|---|
|   | DI |    |   |   |   |   |
| 0 | 2B | 1  |   |   |   | A |
| 1 | 5B | 20 | E | 0 |   |   |
| 2 | 5B | 22 | E | 0 |   |   |
| 3 | 2T | 25 | S | 0 | A |   |
|   | DC |    |   |   |   |   |
|   | DO |    |   |   |   |   |

TNLSC  
"INLSC"

APL(augment prescan list)

|   | DA | O     | Z | T | O |       |
|---|----|-------|---|---|---|-------|
|   | DI |       |   |   |   |       |
| 0 | 2B | 2     |   |   | A |       |
| 1 | 6B | 24    | E | O |   |       |
| 2 | 2B | 1     |   |   | A |       |
| 3 | 0B | 19    | E | O |   | NLSC  |
| 4 | 6B | 20    | E | O |   | TNLSC |
| 5 | 2A | 25    | E | O |   | PLIE  |
| 6 | 6A | 32767 | X | O | B |       |
| 7 | 1A | 1     |   |   | A |       |
| 8 | 6A | 0     | X | O | B |       |
| 9 | 2T | 0     | S | O | A |       |
|   | DC |       |   |   |   |       |
|   | DO |       |   |   |   |       |

FTL(fill translator list)

|   | DA |    | O  | Z | W | O |             |
|---|----|----|----|---|---|---|-------------|
|   | DI |    |    |   |   |   |             |
| 0 |    | 2B | 26 | E | O |   | TLSC        |
| 1 | U  | 1B | 27 | E | O | Z | upper bound |
| 2 | Y  | 7P |    |   |   |   |             |
| 3 |    | 6S | 0  | X | O | B |             |
| 4 |    | 0B | 1  |   |   | A |             |
| 5 |    | 6B | 26 | E | O |   |             |
| 6 |    | 2T | 8  | X | O | E |             |
|   | DC |    |    |   |   |   |             |
|   | DO |    |    |   |   |   |             |

PSP(prescan program)

|    | DA   |      | O | Z  | U | O |   |
|----|------|------|---|----|---|---|---|
|    | DI   |      |   |    |   |   |   |
| 0  | 2B   | 0    |   |    |   |   | A |
| 1  | 6B   | 28   | E | 0  |   |   |   |
| 2  | 6T   | 0    | L | 0  | 5 |   |   |
| 3  | 2S   | 8    | E | 0  |   |   |   |
| 4  | U 1S | 84   |   |    |   | A | P |
| 5  | N 2T | 0    | U | 0  |   | A |   |
| 6  | U 1S | 85   |   |    |   | A | Z |
| 7  | Y 2T | 1    | U | 2  |   | A |   |
| 8  | U 1S | 89   |   |    |   | A | P |
| 9  | N 2T | 0    | U | 0  |   | A |   |
| 10 | U 1S | 90   |   |    |   | A | Z |
| 11 | Y 2T | 0    | U | 1  | 3 | A |   |
| 12 | U 1S | 91   |   |    |   | A | Z |
| 13 | Y 2T | 0    | U | 4  |   | A |   |
| 14 | U 1S | 97   |   |    |   | A | P |
| 15 | N 2T | 0    | U | 0  |   | A |   |
| 16 | U 1S | 101  |   |    |   | A | P |
| 17 | N 2T | 23   | U | 1  |   | A |   |
| 18 | U 1S | 102  |   |    |   | A | Z |
| 19 | Y 2T | 17   | U | 1  |   | A |   |
| 20 | U 1S | 103  |   |    |   | A | Z |
| 21 | Y 7Y | 1018 | C | 0  |   |   |   |
| 22 | U 1S | 104  |   |    |   | A | Z |
| 23 | Y 2T | 4    | U | 2  |   | A |   |
| 24 | U 1S | 105  |   |    |   | A | Z |
| 25 | Y 2T | 10   | U | 4  |   | A |   |
| 26 | U 1S | 106  |   |    |   | A | Z |
| 27 | Y 2T | 0    | U | 6  |   | A |   |
| 28 | U 1S | 108  |   |    |   | A | P |
| 29 | N 2T | 0    | U | 7  |   | A |   |
| 30 | U 1S | 109  |   |    |   | A | Z |
| 31 | Y 2T | 0    | U | 10 |   | A |   |
|    | DC   |      |   |    |   |   |   |
|    | DO   |      |   |    |   |   |   |

RUND

|    |      |         |       |
|----|------|---------|-------|
|    | DA   | O Z U 1 |       |
|    | DI   |         |       |
| 0  | U 1S | 110     | A Z   |
| 1  | Y 2T | 0       | U11 A |
| 2  | U 1S | 111     | A Z   |
| 3  | Y 2T | 0       | U14 A |
| 4  | U 1S | 112     | A Z   |
| 5  | Y 2T | 7       | U15 A |
| 6  | U 1S | 115     | A P   |
| 7  | N 2T | 10      | U 9 A |
| 8  | U 1S | 122     | A Z   |
| 9  | N 7Y | 1022    | C 0   |
| 10 | 2T   | 28      | U 4 A |
| 11 | 1B   | 29      | E 0 Z |
| 12 | N 7Y | 1016    | C 0   |
| 13 | 6T   | 0       | U 3 0 |
| 14 | 7Y   | 1000    | C 0   |
| 15 | 6T   | 0       | K 0 3 |
| 16 | U 1A | 102     | A Z   |
| 17 | 2S   | 1       | A     |
| 18 | Y 4S | 3       | E 0   |
| 19 | U 1A | 103     | A Z   |
| 20 | Y 5S | 3       | E 0 Z |
| 21 | N 2T | 15      | U 1 A |
| 22 | 2T   | 0       | U 0 A |
| 23 | 2A   | 1       | A     |
| 24 | U 1S | 98      | A Z   |
| 25 | Y 4A | 3       | E 1   |
| 26 | U 1S | 99      | A Z   |
| 27 | Y 5A | 3       | E 1   |
| 28 | U 1S | 100     | A Z   |
| 29 | Y 4A | 4       | E 1   |
| 30 | U 1S | 101     | A Z   |
| 31 | Y 5A | 4       | E 1   |
|    | DC   |         |       |
|    | DO   |         |       |

end prescan  
NRS

QC

|    | DA   |      | O | Z | U | 2   |
|----|------|------|---|---|---|-----|
|    | DI   |      |   |   |   |     |
| 0  | 2T   |      | 0 |   | U | 0 A |
| 1  | 6T   | 18   |   |   | U | 3 1 |
| 2  | 6T   | 8    |   |   | U | 3 1 |
| 3  | 2T   | 0    |   |   | U | 0 A |
| 4  | 2S   | 5000 |   |   |   | A   |
| 5  | 6T   | 0    |   |   | W | 0 0 |
| 6  | 2A   | 28   |   |   | E | 0 Z |
| 7  | N 2T | 0    |   |   | U | 0 A |
| 8  | 6T   | 0    |   |   | L | 0 5 |
| 9  | U 1A | 105  |   |   |   | A P |
| 10 | U 1A | 112  |   |   |   | A E |
| 11 | Y 2A | 0    |   |   |   | A   |
| 12 | N 2A | 1    |   |   |   | A   |
| 13 | 6A   | 14   |   |   | E | 0   |
| 14 | Y 2T | 3    |   |   | U | 0 A |
| 15 | 3B   | 1    |   |   |   | A   |
| 16 | 4B   | 26   |   |   | E | 0   |
| 17 | 6T   | 8    |   |   | U | 3 1 |
| 18 | 6T   | 18   |   |   | U | 3 1 |
| 19 | 3S   | 1    |   |   |   | A   |
| 20 | 6T   | 0    |   |   | W | 0 0 |
| 21 | 2S   | 5000 |   |   |   | A   |
| 22 | 6T   | 0    |   |   | W | 0 0 |
| 23 | 2T   | 3    |   |   | U | 0 A |

DC  
DO

FTL(begin)

RUND

DECFLA

TLSC

FTL(-1)

FTL(begin)

|    | DA   | O    | Z | U | 3   |                     |
|----|------|------|---|---|-----|---------------------|
|    | DI   |      |   |   |     |                     |
| 0  | 2A   | 3    | E | 1 | Z   | bracket<br>counters |
| 1  | Y 2A | 4    | E | 1 | Z   |                     |
| 2  | Y 2T | 8    | X | 0 | E   |                     |
| 3  | 7Y   | 1027 | C | 0 |     | Flag word           |
| 4  | 2S   | 12   | E | 0 |     |                     |
| 5  | 2LS  | 2    |   |   | A Z |                     |
| 6  | N 2T | 8    | X | 0 | E   |                     |
| 7  | 7Y   | 1026 | C | 0 |     |                     |
| 8  | 2S   | 11   | E | 0 |     | FTL(OBC)            |
| 9  | 6T   | 0    | W | 0 | O   |                     |
| 10 | 3S   | 0    |   |   | A   | FTL(-O)             |
| 11 | 6T   | 0    | W | 0 | O   |                     |
| 12 | 2S   | 30   | E | 0 |     |                     |
| 13 | OS   | 1    |   |   | A   | BC<br>OBC<br>APL    |
| 14 | 6S   | 30   | E | 0 |     |                     |
| 15 | 6S   | 11   | E | 0 |     |                     |
| 16 | 6T   | 0    | T | 0 | O   |                     |
| 17 | 2T   | 9    | X | 0 | E   |                     |
| 18 | 2S   | 6    |   |   | A   |                     |
| 19 | 6S   | 0    | X | 0 |     |                     |
| 20 | 2S   | 0    |   |   | A   | FTL(+O)             |
| 21 | 6T   | 0    | W | 0 | O   |                     |
| 22 | 4T   | 20   | U | 3 | O P |                     |
| 23 | 2T   | 9    | X | 0 | E   |                     |
| 24 | 6T   | 11   | U | 5 | 1   |                     |
| 25 | 2A   | 0    | X | 0 | B   | restore OBC         |
| 26 | 6A   | 11   | E | 0 |     |                     |
| 27 | 2T   | 10   | X | 0 | E   |                     |
|    | DC   |      |   |   |     |                     |
|    | DO   |      |   |   |     |                     |

|    | DA    | O     | Z | U   | 4   |
|----|-------|-------|---|-----|-----|
| 0  | DI 6T | 0     |   | U   | 5 2 |
| 1  | OA    | 5000  |   | A   | Z   |
| 2  | Y 6A  | 14    | E | 0   |     |
| 3  | N 1B  | 8     |   | A   |     |
| 4  | N 6B  | 26    | E | 0   |     |
| 5  | N 6T  | 24    | U | 3 2 |     |
| 6  | N 2A  | 1     |   | A   |     |
| 7  | N 6A  | 14    | E | 0   |     |
| 8  | 6T    | 0     | U | 3 0 |     |
| 9  | 2T    | 0     | U | 0 A |     |
| 10 | 2B    | 26    | E | 0   |     |
| 11 | 2A    | 32767 | X | 0 B |     |
| 12 | U 1A  | 5000  |   | A   | Z   |
| 13 | N 6T  | 0     | U | 5 2 |     |
| 14 | N 2T  | 10    | U | 4 A |     |
| 15 | 2A    | 32766 | X | 0 B |     |
| 16 | OA    | 1     |   | A   | Z   |
| 17 | N 2A  | 1     |   | A   |     |
| 18 | N 5A  | 26    | E | 0   |     |
| 19 | Y 1B  | 10    |   | A   |     |
| 20 | Y 6B  | 26    | E | 0   |     |
| 21 | Y 6T  | 24    | U | 3 2 |     |
| 22 | 2A    | 9     | E | 0   | Z   |
| 23 | N 2A  | 0     |   | A   |     |
| 24 | N 2T  | 7     | U | 4 A |     |
| 25 | 6T    | 0     | K | 0 3 |     |
| 26 | 1A    | 122   |   | A   | Z   |
| 27 | N 7Y  | 1020  | C | 0   |     |
| 28 | 6T    | 0     | U | 5 2 |     |
| 29 | 2B    | 26    | E | 0   |     |
| 30 | 2T    | 11    | U | 1 A |     |

DC  
DO

DECFLA

TLSC

BEC

NRS

|    | DA |    | O     | Z | U | 5 |   |
|----|----|----|-------|---|---|---|---|
|    | DI |    |       |   |   |   |   |
| 0  |    | 2B | 26    |   | E | 0 |   |
| 1  |    | 3A | 32767 | X | 0 | B | P |
| 2  | N  | 2T | 10    | X | 0 |   | E |
| 3  |    | 1B | 10    |   |   | A |   |
| 4  |    | 6B | 26    | E | 0 |   |   |
| 5  |    | 6T | 11    | U | 5 | 1 |   |
| 6  |    | 2A | 8     | X | 0 | B |   |
| 7  |    | 6A | 11    | E | 0 |   |   |
| 8  |    | 0B | 2     |   |   | A |   |
| 9  |    | 6B | 26    | E | 0 |   |   |
| 10 |    | 2T | 0     | U | 5 | A |   |
| 11 |    | 2S | 19    | E | 0 |   |   |
| 12 |    | 6S | 20    | E | 0 |   |   |
| 13 |    | 2A | 6     |   |   | A |   |
| 14 |    | 6A | 0     | X | 0 |   |   |
| 15 |    | 2B | 26    | E | 0 |   |   |
| 16 |    | 2A | 2     | X | 0 | B |   |
| 17 |    | 2B | 20    | E | 0 |   |   |
| 18 |    | 6A | 0     | X | 0 | B |   |
| 19 |    | 2B | 1     |   |   | A |   |
| 20 |    | 4B | 20    | E | 0 |   |   |
| 21 |    | 4B | 26    | E | 0 |   |   |
| 22 |    | 4T | 15    | U | 5 | O | P |
| 23 |    | 5B | 20    | E | 0 |   |   |
| 24 |    | 0B | 20    | E | 0 |   |   |
| 25 |    | 1B | 19    | E | 0 |   |   |
| 26 |    | 6B | 24    | E | 0 |   |   |
| 27 |    | 6T | 0     | S | 0 | O |   |
| 28 |    | 2B | 6     |   |   | A |   |
| 29 |    | 5B | 26    | E | 0 |   |   |
| 30 |    | 2B | 26    | E | 0 |   |   |
| 31 |    | 2T | 9     | X | 0 |   | E |

emptying translator list

restore OBT

NLSC  
TNLSC

FPL

DC  
DO

|    |      |               |                |
|----|------|---------------|----------------|
|    | DA   | 0 Z U 6       |                |
|    | DI   |               |                |
| 0  | 2A   | 1             | A              |
| 1  | 6A   | 9 E 1         | own-flag       |
| 2  | 2B   | 26 E 0        |                |
| 3  | 2A   | 32767 X 0 B   |                |
| 4  | 1A   | 5000 A Z      | <u>begin</u> ? |
| 5  | N 7Y | 1028 C 0      |                |
| 6  | 2A   | 32766 X 0 B   |                |
| 7  | 0A   | 1 A Z         |                |
| 8  | Y 1B | 1 A           |                |
| 9  | 2A   | 32765 X 0 B Z |                |
| 10 | Y 2A | 32764 X 0 B Z |                |
| 11 | Y 2A | 2 A           |                |
| 12 | Y 4A | 6 E 1         |                |
| 13 | 6T   | 19 U 6 6      |                |
| 14 | 1A   | 107 A Z       |                |
| 15 | N 1A | 1 A Z         |                |
| 16 | N 1A | 1 A Z         |                |
| 17 | Y 2T | 3 U 0 A       |                |
| 18 | 7Y   | 1029 C 0      |                |
| 19 | 6T   | 0 L 0 5       | RUND           |
| 20 | 2S   | 14 E 0 Z      | DECFLA         |
| 21 | N 2T | 14 X 0 E      |                |
| 22 | 7Y   | 1031 C 0      |                |
|    | DC   |               |                |
|    | DO   |               |                |

|    | DA   | O     | Z | U  | 7 |     |
|----|------|-------|---|----|---|-----|
|    | DI   |       |   |    |   |     |
| 0  | U 1S | 107   |   |    |   | A Z |
| 1  | Y 2A | 1     |   |    |   | A   |
| 2  | N 2A | 2     |   |    |   | A   |
| 3  | 6A   | 11    | E | 1  |   |     |
| 4  | 2A   | 9     | E | 1  |   | Z   |
| 5  | 6T   | 19    | U | 6  | 6 |     |
| 6  | N 2T | 19    | U | 7  | A |     |
| 7  | U 1A | 110   |   |    |   | A Z |
| 8  | Y 2T | 0     | U | 11 | A |     |
| 9  | U 1A | 112   |   |    |   | A Z |
| 10 | Y 2T | 7     | U | 15 | A |     |
| 11 | 6T   | 0     | U | 8  | 6 |     |
| 12 | 6T   | 10    | U | 8  | 0 |     |
| 13 | 2A   | 32766 | X | 0  | B |     |
| 14 | OA   | 1     |   |    |   | A Z |
| 15 | Y 1B | 1     |   |    |   | A   |
| 16 | 2A   | 2     | E | 1  |   |     |
| 17 | 4A   | 32766 | X | 0  | B |     |
| 18 | 2T   | 20    | U | 9  | A |     |
| 19 | U 1A | 110   |   |    |   | A Z |
| 20 | Y 2T | 4     | U | 11 | A |     |
| 21 | 6T   | 0     | U | 8  | 6 |     |
| 22 | 2B   | 26    | E | 0  |   |     |
| 23 | 2A   | 32766 | X | 0  | B |     |
| 24 | OA   | 1     |   |    |   | A Z |
| 25 | Y 1B | 2     |   |    |   | A   |
| 26 | N 1B | 1     |   |    |   | A   |
| 27 | 2A   | 0     |   |    |   | A   |
| 28 | 6A   | 9     | E | 1  |   |     |
| 29 | 2T   | 16    | U | 7  | A |     |
|    | DC   |       |   |    |   |     |
|    | DO   |       |   |    |   |     |

own-flag

initialization

own-flag

|    | DA   | O     | Z | U  | 8 |     |
|----|------|-------|---|----|---|-----|
|    | DI   |       |   |    |   |     |
| 0  | 6T   | 4     |   | U  | 3 | O   |
| 1  | 2A   | 8     |   | E  | 0 |     |
| 2  | U 1A | 87    |   |    |   | A Z |
| 3  | 2S   | 1     |   |    |   | A   |
| 4  | 4S   | 2     |   | E  | 1 |     |
| 5  | Y 6T | 0     |   | L  | 0 | 5   |
| 6  | Y 2T | 0     |   | U  | 8 | A   |
| 7  | U 1A | 91    |   |    |   | A Z |
| 8  | Y 2T | 14    |   | X  | 0 | E   |
| 9  | 7Y   | 1030  |   | C  | 0 |     |
| 10 | 2B   | 26    |   | E  | 0 |     |
| 11 | 2A   | 32767 |   | X  | 0 | B   |
| 12 | U 1A | 5000  |   |    |   | A Z |
| 13 | N 2T | 20    |   | U  | 9 | A   |
| 14 | 2T   | 8     |   | X  | 0 | E   |
| 15 | 2S   | 64    |   |    |   | A   |
| 16 | 2T   | 26    |   | U  | 8 | A   |
| 17 | 2S   | 11    |   | E  | 1 | Z   |
| 18 | Y 2S | 32    |   |    |   | A   |
| 19 | Y 2T | 26    |   | U  | 8 | A   |
| 20 | U 1S | 1     |   |    |   | A Z |
| 21 | Y 2S | 288   |   |    |   | A   |
| 22 | Y 2T | 26    |   | U  | 8 | A   |
| 23 | U 1S | 2     |   |    |   | A Z |
| 24 | Y 2S | 292   |   |    |   | A   |
| 25 | N 2S | 293   |   |    |   | A   |
| 26 | 2P   | 16    |   | SS |   |     |
| 27 | 2T   | 8     |   | X  | 0 | E   |
| 28 | 2S   | 20    |   | E  | 0 |     |
| 29 | OS   | 2     |   |    |   | A   |
| 30 | 6S   | 20    |   | E  | 0 |     |
| 31 | 1S   | 19    |   | E  | 0 |     |

DC  
DO

RUND

initialization

TNLSC

|    | DA   |       | O | Z | U | 9   |   |
|----|------|-------|---|---|---|-----|---|
|    | DI   |       |   |   |   |     |   |
| 0  | OS   | 1     |   |   |   |     | A |
| 1  | 6S   | 24    |   | E | O |     |   |
| 2  | 2T   | 8     |   | X | O |     | E |
| 3  | 2B   | 20    |   | E | O |     |   |
| 4  | 2S   | 0     |   | E | 1 |     |   |
| 5  | 2A   | 1     |   | E | 1 |     |   |
| 6  | 6S   | 0     |   | X | O | B   |   |
| 7  | 6A   | 32767 | X | O | B |     |   |
| 8  | 6T   | 0     | S | O | O |     |   |
| 9  | 2T   | 9     | X | O |   | E   |   |
| 10 | 2A   | 28    | E | O |   | Z   |   |
| 11 | N 2B | 26    | E | O |   |     |   |
| 12 | N 2A | 32767 | X | O | B |     |   |
| 13 | N 1A | 5000  |   |   |   | A Z |   |
| 14 | Y 7Y | 1032  | C | O |   |     |   |
| 15 | 6T   | 0     | L | O | 5 |     |   |
| 16 | U 1A | 87    |   |   |   | A Z |   |
| 17 | Y 2T | 15    | U | 9 | A |     |   |
| 18 | U 1A | 91    |   |   |   | A Z |   |
| 19 | N 7Y | 1033  | C | O |   |     |   |
| 20 | 2S   | 0     |   |   |   | A   |   |
| 21 | 6S   | 2     | E | 1 |   |     |   |
| 22 | 6S   | 7     | E | 1 |   |     |   |
| 23 | 6S   | 10    | E | 1 |   |     |   |
| 24 | 6S   | 11    | E | 1 |   |     |   |
| 25 | 2T   | 2     | U | O | A |     |   |

DC

DO

FPL

RUND

|    | DA   | O    | Z | U10   |     |
|----|------|------|---|-------|-----|
|    | DI   |      |   |       |     |
| 0  | 2A   | 3    |   |       | A   |
| 1  | 6A   | 11   |   | E 1   |     |
| 2  | 2A   | 9    |   | E 1   | Z   |
| 3  | 6T   | 19   |   | U 6 6 |     |
| 4  | N 2T | 16   |   | U10   | A Z |
| 5  | U 1A | 110  |   |       | A Z |
| 6  | Y 2T | 0    |   | U11   | A Z |
| 7  | U 1A | 112  |   |       | A Z |
| 8  | Y 2T | 7    |   | U15   | A   |
| 9  | 6T   | 0    |   | U 8 6 |     |
| 10 | 6T   | 10   |   | U 8 0 |     |
| 11 | 2A   | 8    |   | E 1   | Z   |
| 12 | 2A   | 2    |   | E 1   |     |
| 13 | N 0A | 2    |   | E 1   |     |
| 14 | 6A   | 2    |   | E 1   |     |
| 15 | 2T   | 13   |   | U 7   | A   |
| 16 | U 1A | 110  |   |       | A Z |
| 17 | Y 2T | 4    |   | U11   | A   |
| 18 | 6T   | 0    |   | U 8 6 |     |
| 19 | 2A   | 8    |   | E 1   | Z   |
| 20 | 2A   | 2    |   | E 1   |     |
| 21 | N 0A | 2    |   | E 1   |     |
| 22 | 6A   | 2    |   | E 1   |     |
| 23 | 2T   | 22   |   | U 7   | A   |
| 24 | U 1A | 105  |   |       | A Z |
| 25 | Y 7Y | 1024 |   | C 0   |     |
| 26 | 1A   | 99   |   |       | A Z |
| 27 | 2T   | 8    |   | X 0   |     |
|    | DC   |      |   |       |     |
|    | DO   |      |   |       |     |

own-rlag

ALP ?

|    | DA   | O     | Z   | U11   |
|----|------|-------|-----|-------|
|    | DI   |       |     |       |
| 0  | 2B   | 26    | E   | 0     |
| 1  | 2A   | 32767 | X   | 0 B   |
| 2  | 1A   | 5000  |     | A Z   |
| 3  | N 2T | 10    | U   | 9 A   |
| 4  | 2A   | 0     |     | A     |
| 5  | 6A   | 2     | E   | 1     |
| 6  | 6A   | 7     | E   | 1     |
| 7  | 6A   | 10    | E   | 1     |
| 8  | 6T   | 19    | U   | 6 6   |
| 9  | 6T   | 4     | U   | 3 0   |
| 10 | U 1A | 87    |     | A Z   |
| 11 | 2S   | 1     |     | A     |
| 12 | 4S   | 7     | E   | 1     |
| 13 | Y 2T | 8     | U11 | A     |
| 14 | U 1A | 100   |     | A Z   |
| 15 | N 7Y | 1034  | C   | 0     |
| 16 | 2S   | 1     |     | A     |
| 17 | 7S   | 3     | Z   | E 1   |
| 18 | 4S   | 4     | Z   | E 1   |
| 19 | 6T   | 0     | Z   | L 0 5 |
| 20 | 2S   | 1     |     | A     |
| 21 | U 1A | 100   |     | A Z   |
| 22 | Y 2T | 18    | Z   | U11 A |
| 23 | U 1A | 90    |     | A Z   |
| 24 | N 2T | 16    | Y   | E 5 A |
| 25 | U 1S | 4     | Z   | E 1 Z |
| 26 | N 7Y | 1034  | C   | 0     |
| 27 | 4S   | 10    | Z   | E 1   |
| 28 | 4S   | 3     | Z   | E 1   |
| 29 | 2T   | 19    | Z   | U11 A |
|    | DC   |       |     |       |
|    | DO   |       |     |       |

colon counter  
squ.br.counter  
RUND

insertion

dimension counter

|    | DA   |       | O   | Z | U12 |          |
|----|------|-------|-----|---|-----|----------|
|    | DI   |       |     |   |     |          |
| 0  | 2A   | 9     | E   | 1 | Z   |          |
| 1  | Y 2T | 9     | U12 | A |     | own-flag |
| 2  | 2B   | 26    | E   | 0 |     |          |
| 3  | 2S   | 32766 | X   | 0 | B   |          |
| 4  | OS   | 1     |     | A | Z   |          |
| 5  | Y 1B | 1     |     | A |     |          |
| 6  | 2S   | 7     | E   | 1 |     |          |
| 7  | 4S   | 32761 | X   | 0 | B   |          |
| 8  | 4S   | 6     | E   | 1 |     | LPSL     |
| 9  | 2A   | 9     | E   | 1 | Z   |          |
| 10 | 2S   | 10    | E   | 1 |     |          |
| 11 | N OS | 10    | E   | 1 |     |          |
| 12 | N OS | 6     |     | A |     |          |
| 13 | Y OS | 4     |     | A |     |          |
| 14 | 2X   | 7     | E   | 1 |     |          |
| 15 | 4S   | 2     | E   | 1 |     |          |
| 16 | 6T   | 0     | L   | 0 | 5   | RUND     |
| 17 | U 1A | 87    |     | A | Z   |          |
| 18 | Y 2A | 0     |     | A |     |          |
| 19 | Y 2T | 6     | U11 | A |     |          |
| 20 | U 1A | 91    |     | A | Z   |          |
| 21 | N 7Y | 1035  | C   | 0 |     |          |
| 22 | 2B   | 26    | E   | 0 |     |          |
| 23 | 2A   | 9     | E   | 1 | Z   |          |
| 24 | Y 2T | 13    | U   | 7 | A   |          |
| 25 | 2A   | 32766 | X   | 0 | B   |          |
| 26 | OA   | 1     |     | A | Z   |          |
| 27 | Y 1B | 3     |     | A |     |          |
| 28 | N 1B | 2     |     | A |     |          |
| 29 | 2T   | 27    | U   | 7 | A   |          |
|    | DC   |       |     |   |     |          |
|    | DO   |       |     |   |     |          |

|    | DA   |       | O | Z   | U13 |
|----|------|-------|---|-----|-----|
|    | DI   |       |   |     |     |
| 0  | 6T   | 4     |   | U   | 3 O |
| 1  | 2B   | 26    |   | E   | O   |
| 2  | 3A   | 32767 | X | O   | B P |
| 3  | 2S   | 1     |   |     | A   |
| 4  | Y 2T | 18    |   | U13 | A   |
| 5  | 2A   | 32767 | X | O   | B   |
| 6  | 1A   | 5000  |   |     | A Z |
| 7  | Y 2A | 32766 | X | O   | B   |
| 8  | Y OA | 1     |   |     | A Z |
| 9  | Y 2T | 18    |   | U13 | A   |
| 10 | 2A   | 5000  |   |     | A   |
| 11 | 1A   | 32767 | X | O   | B P |
| 12 | Y OB | 2     |   |     | A   |
| 13 | Y 2T | 18    |   | U13 | A   |
| 14 | 2A   | 5000  |   |     | A   |
| 15 | 1A   | 32767 | X | O   | B Z |
| 16 | Y 1B | 1     |   |     | A   |
| 17 | Y 2T | 2     |   | U13 | A   |
| 18 | 4S   | 32762 | X | O   | B   |
| 19 | 6T   | 28    |   | U   | 8 O |
| 20 | 2S   | 0     |   |     | A   |
| 21 | 6S   | 1     |   | E   | 1   |
| 22 | 6T   | 15    |   | U   | 8 O |
| 23 | OS   | 24    |   | E   | O   |
| 24 | 6S   | 0     |   | E   | 1   |
| 25 | 6T   | 3     |   | U   | 9 1 |
| 26 | 2S   | 0     |   |     | A   |
| 27 | 6S   | 14    | Z | E   | O   |
| 28 | 2T   | 0     | Z | U   | O A |

DC  
DO

name code II

name code I

DECFLA

|    | DA    | O     | Z   | U14 |     |
|----|-------|-------|-----|-----|-----|
| 0  | DI 2A | 28    | E   | 0   | Z   |
| 1  | N 2T  | 10    | U   | 9   | A   |
| 2  | 6T    | 19    | U   | 6   | 6   |
| 3  | 1A    | 92    |     |     | A Z |
| 4  | N 7Y  | 1021  | C   | 0   |     |
| 5  | 6T    | 4     | U   | 3   | 0   |
| 6  | 6T    | 28    | U   | 8   | 0   |
| 7  | 6T    | 0     | K   | 0   | 3   |
| 8  | 2S    | 1     |     |     | A   |
| 9  | U 1A  | 100   |     |     | A Z |
| 10 | Y 4S  | 3     | E   | 1   |     |
| 11 | U 1A  | 101   |     |     | A Z |
| 12 | Y 5S  | 3     | E   | 1   |     |
| 13 | 2B    | 3     | E   | 1   | Z   |
| 14 | N 2T  | 7     | U14 |     | A   |
| 15 | U 1A  | 87    |     |     | A Z |
| 16 | Y 4S  | 2     | E   | 1   |     |
| 17 | U 1A  | 91    |     |     | A Z |
| 18 | N 2T  | 7     | U14 |     | A   |
| 19 | 4S    | 2     | E   | 1   |     |
| 20 | 2P    | 20    | SS  |     |     |
| 21 | OS    | 24    | E   | 0   |     |
| 22 | 2B    | 20    | E   | 0   |     |
| 23 | 6S    | 0     | X   | 0   | B   |
| 24 | 2A    | 2     | E   | 1   |     |
| 25 | U 1A  | 31    |     |     | A P |
| 26 | OT    | 0     |     |     | A   |
| 27 | 2P    | 16    | AA  |     |     |
| 28 | 6A    | 32767 | X   | 0   | B   |
| 29 | 6T    | 0     | S   | 0   | 0   |
| 30 | 2A    | 2     | E   | 1   |     |
| 31 | OA    | 2     | E   | 1   |     |

NRS

FPL

DC  
DO

|    | DA   | O     | Z   | U15 |                 |
|----|------|-------|-----|-----|-----------------|
|    | DI   |       |     |     |                 |
| 0  | OA   | 1     |     | A   |                 |
| 1  | 2B   | 26    | E   | O   |                 |
| 2  | 2S   | 32766 | X   | O B |                 |
| 3  | OS   | 1     |     | A Z |                 |
| 4  | Y 1B | 1     |     | A   |                 |
| 5  | 4A   | 32762 | X   | O B |                 |
| 6  | 2T   | 20    | U   | 9 A | initializations |
| 7  | 2A   | 28    | E   | O Z |                 |
| 8  | N 2T | 10    | U   | 9 A |                 |
| 9  | 2A   | 1     |     | A   |                 |
| 10 | 6A   | 28    | E   | O   |                 |
| 11 | 6T   | 0     | L   | O 5 | RUND            |
| 12 | 6T   | 4     | U   | 3 O |                 |
| 13 | 6T   | 28    | U   | 8 O |                 |
| 14 | OT   | 0     |     | A   |                 |
| 15 | 2S   | 8     | E   | O   |                 |
| 16 | U 1S | 91    |     | A Z |                 |
| 17 | Y 2T | 1     | U16 | A Z |                 |
| 18 | U 1S | 98    |     | A Z |                 |
| 19 | N 7Y | 1023  | C   | O   |                 |
| 20 | 2A   | 1     |     | A   |                 |
| 21 | 4A   | 2     | E   | 1   |                 |
| 22 | 6T   | 0     | K   | O 3 | NRS             |
| 23 | U 1A | 87    |     | A Z |                 |
| 24 | Y 2T | 20    | U15 | A   |                 |
| 25 | 6T   | 24 Z  | U10 | O   |                 |
| 26 | N 2T | 22    | U15 | A   |                 |
| 27 | 6T   | 0     | L   | O 5 | RUND            |
| 28 | 2S   | 12    | E   | O   |                 |
| 29 | 2LS  | 0     |     | A Z |                 |
| 30 | N 7Y | 1024  | C   | O   |                 |
| 31 | 1A   | 91    |     | A Z |                 |
|    | DC   |       |     |     |                 |
|    | DO   |       |     |     |                 |

|    | DA |    | O     | Z  | U16 |       |
|----|----|----|-------|----|-----|-------|
|    | DI |    |       |    |     |       |
| 0  | N  | 7Y | 1025  | C  | 0   |       |
| 1  |    | 2A | 2     | E  | 1   |       |
| 2  | U  | 1A | 31    |    |     | A P   |
| 3  | Y  | 7Y | 1017  | C  | 0   |       |
| 4  |    | 2B | 20    | E  | 0   | TNLSC |
| 5  |    | 2P | 16    | AA |     |       |
| 6  |    | 6A | 32767 | X  | 0 B |       |
| 7  |    | 6T | 17    | U  | 8 0 |       |
| 8  |    | OS | 24    | E  | 0   |       |
| 9  |    | 6S | 0     | X  | 0 B |       |
| 10 |    | 6T | 2     | S  | 0 0 | FPL   |
| 11 |    | 6T | 8     | U  | 3 1 |       |
| 12 |    | 6T | 18    | U  | 3 1 |       |
| 13 |    | 2T | 20    | U  | 9 A |       |
|    | DC |    |       |    |     |       |
|    | DO |    |       |    |     |       |

basic cycle

|    | DA    | O    | Z | Y | O |
|----|-------|------|---|---|---|
| 0  | DI 6T | 0    | L | 0 | 5 |
| 1  | 2A    | 12   | E | 0 |   |
| 2  | U 2LA | 2    |   | A | Z |
| 3  | Y 2T  | 6    | Y | 0 | A |
| 4  | 2LA   | 0    | F | Z | 0 |
| 5  | Y 6T  | 0    | F | E | 0 |
| 6  | 2B    | 8    | Z | E | 0 |
| 7  | U 1B  | 65   |   | A | P |
| 8  | N 2T  | 0    | F | H | 0 |
| 9  | U 1B  | 69   |   | A | P |
| 10 | N 2T  | 0    | F | L | 0 |
| 11 | U 1B  | 75   |   | A | P |
| 12 | N 2T  | 0    | F | K | 0 |
| 13 | U 1B  | 76   |   | A | Z |
| 14 | Y 2T  | 0    | F | R | 0 |
| 15 | U 1B  | 80   |   | A | P |
| 16 | N 2T  | 0    | F | S | 0 |
| 17 | U 1B  | 122  |   | A | Z |
| 18 | Y 2T  | 0    | F | T | 0 |
| 19 | 2T    | 61-Z | Y | 0 | B |
| 20 | 2A    | 0    | F | W | 0 |
| 21 | OA    | 0    | F | U | 0 |
| 22 | OA    | 0    | F | Y | 0 |
| 23 | OA    | 0    | F | N | 0 |
| 24 | OA    | 0    | H | Z | 0 |
| 25 | OA    | 0    | H | E | 0 |
| 26 | OA    | 0    | H | F | 0 |
| 27 | OB    | 1036 | X | 0 |   |
| 28 | OB    | 1036 | X | 0 |   |
| 29 | OA    | 0    | H | H | 0 |
| 30 | OA    | 0    | H | K | 0 |
| 31 | OA    | 0    | H | L | 0 |

DC  
DO

RUND  
Flag word  
NFLA  
  
NIFLA  
LFN  
delimiter  
  
+ -  
  
\* / ÷ 1  
  
relational operators  
  
logical "not"  
  
other log. operators  
  
"?" or stopcode  
  
go to  
if  
then  
else  
for  
do  
,  
:  
"small 10"  
:  
;  
:=

|    | DA | O     | Z | Y | 1 |                        |
|----|----|-------|---|---|---|------------------------|
|    | DI |       |   |   |   |                        |
| 0  | OB | 1036  | X | O |   | "space"                |
| 1  | OA | 0 H R | O |   |   | <u>step</u>            |
| 2  | OA | 0 H S | O |   |   | <u>until</u>           |
| 3  | OA | 0 H T | O |   |   | <u>while</u>           |
| 4  | OB | 1036  | X | O |   | <u>comment</u>         |
| 5  | OA | 0 H W | O |   |   | (                      |
| 6  | OA | 0 H U | O |   |   | )                      |
| 7  | OA | 0 H Y | O |   |   | opening square bracket |
| 8  | OA | 0 H N | O |   |   | closing square bracket |
| 9  | OA | 0 K Z | O |   |   | opening string quote   |
| 10 | OB | 1036  | X | O |   | closing string quote   |
| 11 | OA | 0 Z N | O |   |   | <u>begin</u>           |
| 12 | OA | 0 K E | O |   |   | <u>end</u>             |
| 13 | OA | 0 K F | O |   |   | <u>own</u>             |
| 14 | OA | 0 K H | O |   |   | <u>Boolean</u>         |
| 15 | OA | 0 K K | O |   |   | <u>integer</u>         |
| 16 | OA | 0 K L | O |   |   | <u>real</u>            |
| 17 | OA | 0 K R | O |   |   | <u>array</u>           |
| 18 | OA | 0 K S | O |   |   | <u>switch</u>          |
| 19 | OA | 0 K T | O |   |   | <u>procedure</u>       |
| 20 | OA | 0 K W | O |   |   | <u>string</u>          |
| 21 | OA | 0 K U | O |   |   | <u>label</u>           |
| 22 | OA | 0 K Y | O |   |   | <u>value</u>           |
|    | DC |       |   |   |   |                        |
|    | DO |       |   |   |   |                        |

begin

|    |       |       |   |   |   |                |
|----|-------|-------|---|---|---|----------------|
|    | DA    | O     | Z | N | O |                |
|    | DI    |       |   |   |   |                |
| 0  | 2A    | 12    | E | O |   |                |
| 1  | U 2LA | 16384 | A | Z |   | PROFLA         |
| 2  | Y 4P  | AS    |   |   |   |                |
| 3  | Y 6T  | 0     | W | O | O | FTL(Flag word) |
| 4  | 2S    | 0     | F | Z | O | BbeginP        |
| 5  | 2B    | 26    | Z | E | O |                |
| 6  | N 1B  | 1     |   |   | A | BbeginC        |
| 7  | Y OS  | 2     |   |   | A | FTL(bracket)   |
| 8  | 6T    | 1     | W | O | O |                |
| 9  | 2B    | 1     | F | Z | O | A              |
| 10 | 6T    | 1     | K | N | O | O              |
| 11 | N 7Y  | 1037  | C | O |   | require        |
| 12 | 6T    | 0     | L | Z | O | O              |
| 13 | 2T    | 0     | Z | Y | O | A              |
|    | DC    |       |   |   |   |                |
|    | DO    |       |   |   |   |                |

put  
to basic cycle

constants

DA 0 F Z 0  
DN  
0 +0.25  
DU  
1 +110111111101111111111111  
DN  
2 +0.5  
DU  
3 +100000000100000000000000  
4 +0  
5 +10000000000000000000  
6 +1100000000111011111110000  
DN  
7 +0  
DU  
8 +100110000000000000000000  
DN  
9 +0.125  
DU  
10 +10001000000001001000  
11 +1100000000111001111111000  
12 +1000  
13 +100110000000100000000000  
14 +100000000000000000000000  
DN  
15 +0.03125  
16 +0.375  
DU  
17 +10000000000000000000  
18 +1000000000000000000000  
19 +10000000000000000000  
20 +11101000000000000000  
21 +11110000000000000000  
22 +1100000000000000000000  
23 +100000000000000000000011  
24 +1000000000000000000001001  
25 +100000000000000000000111  
26 +101100000000000000000000  
27 +1000000000000000000001010  
28 +1000000000000000000001100  
29 +1011101111011011111100000  
30 +0  
31 +1000000000000000000000001  
DC  
DO



LFN(look for name)

|    |      |              |  |
|----|------|--------------|--|
|    | DA   | O F E O      |  |
|    | DI   |              |  |
| 0  | 3B   | 19 Z E O     |  |
| 1  | 7B   | 16 E 1       |  |
| 2  | 7B   | 3 E 2        |  |
| 3  | 0B   | 3 A          |  |
| 4  | 0B   | 20 E O       |  |
| 5  | 6B   | 15 E 1       |  |
| 6  | 2B   | 15 E 1       |  |
| 7  | 1B   | 2 A          |  |
| 8  | 6B   | 0 X O        |  |
| 9  | 2B   | 16 E 1       |  |
| 10 | 6T   | 16 F E 1 O   |  |
| 11 | 2S   | 32767 X O B  |  |
| 12 | 4P   | SB           |  |
| 13 | U 1B | 15 Z E 1 Z   |  |
| 14 | N 5B | 16 E 1       |  |
| 15 | N 2T | 9 F E O A    |  |
| 16 | 2B   | 16 Z E 1     |  |
| 17 | 6B   | 17 E 1       |  |
| 18 | 2B   | 20 E O       |  |
| 19 | 6B   | 18 E 1       |  |
| 20 | 2B   | 17 E 1       |  |
| 21 | 2S   | 32765 X O B  |  |
| 22 | 2B   | 18 E 1       |  |
| 23 | 1S   | 0 X O B Z    |  |
| 24 | N 2B | 15 E 1       |  |
| 25 | N 5B | 16 E 1       |  |
| 26 | N 2T | 6 F E O A    |  |
| 27 | 2B   | 1 A          |  |
| 28 | 5B   | 17 Z E 1     |  |
| 29 | 5B   | 18 E 1       |  |
| 30 | 4T   | 20 F E O O P |  |
| 31 | 2B   | 16 Z E 1     |  |
|    | DC   |              |  |
|    | DO   |              |  |

NLSC

TNLSC

name code I

compare name word

|    | DA    | O F E 1 |           |                      |
|----|-------|---------|-----------|----------------------|
|    | DI    |         |           |                      |
| 0  | 2S    | 32767   | X O B     |                      |
| 1  | 2A    | 32766   | X O B     |                      |
| 2  | 6S    | 0       | Z E 1     | name code I          |
| 3  | 6A    | 1       | E 1       | name code II         |
| 4  | 2A    | 0       | A         |                      |
| 5  | 3P    | 16      | SS        |                      |
| 6  | U 2LS | 80      | A Z       | non-designational ?  |
| 7  | N 2A  | 16      | A         | DEFLA                |
| 8  | N 2T  | 14      | F E 1 A   |                      |
| 9  | U 2LS | 4       | A Z       | non-arithmetical ?   |
| 10 | Y 2T  | 14      | F E 1 A   |                      |
| 11 | 2A    | 8       | A         |                      |
| 12 | U 2LS | 1       | A Z       |                      |
| 13 | Y OA  | 4       | A         |                      |
| 14 | 4A    | 12      | Z E O     | Flag word            |
| 15 | 2T    | 9       | X O E     |                      |
| 16 | U 1B  | 22      | E O P     |                      |
| 17 | Y 2T  | 8       | X O E     |                      |
| 18 | 2A    | 3       | E 2 Z     |                      |
| 19 | Y 2T  | 25      | F E 1 A   |                      |
| 20 | 2B    | 0       | L N O A   | switch over to fixed |
| 21 | OB    | 0       | E R O A   | part of name list    |
| 22 | 6B    | 16      | Z E 1     |                      |
| 23 | 2A    | 0       | A         |                      |
| 24 | 6A    | 3       | E 2       |                      |
| 25 | U 1B  | 0       | L N O A P |                      |
| 26 | Y 2T  | 8       | X O E     |                      |
| 27 | 7Y    | 1048    | C O       |                      |
|    | DC    |         |           |                      |
|    | DO    |         |           |                      |

FNL(fill name list)

|   |      |       |   |   |   |   |              |
|---|------|-------|---|---|---|---|--------------|
|   | DA   |       | O | F | F | O |              |
|   | DI   |       |   |   |   |   |              |
| 0 | 2B   | 20    | Z | E | O |   | TNLSC        |
| 1 | 0B   | 3     |   |   |   | A |              |
| 2 | 6B   | 19    |   | E | O |   | NLSC         |
| 3 | U 1B | 23    |   | E | O | P | upper bound  |
| 4 | Y 7P |       |   |   |   |   |              |
| 5 | 2A   | 0     |   | E | 1 |   | name code I  |
| 6 | 2S   | 1     |   | E | 1 |   | name code II |
| 7 | 6A   | 32767 | X | O | B |   |              |
| 8 | 6S   | 32766 | X | O | B |   |              |
| 9 | 2T   | 8     | X | O | E |   |              |
|   | DC   |       |   |   |   |   |              |
|   | DO   |       |   |   |   |   |              |

+ -

|    | DA    | O F H O    |                   |  |
|----|-------|------------|-------------------|--|
|    | DI    |            |                   |  |
| 0  | 2A    | 12 Z E O   | Flag word         |  |
| 1  | U 2LA | 3 A Z      | NFLA & KFLA       |  |
| 2  | N 2T  | 15 F H O A |                   |  |
| 3  | U 2LA | 5 F Z O Z  | OFLA              |  |
| 4  | Y 2T  | 15 F H O A |                   |  |
| 5  | 2B    | 6 F Z O A  | non-operational + |  |
| 6  | 6T    | 1 K N O O  | require           |  |
| 7  | N 7Y  | 1038 C O   |                   |  |
| 8  | 6T    | 0 L Z O O  | put               |  |
| 9  | 2A    | 8 Z E O    |                   |  |
| 10 | 1A    | 64 A Z     |                   |  |
| 11 | Y 2T  | 0 Y O A    |                   |  |
| 12 | 6T    | 0 L E O 4  | PCP               |  |
| 13 | 2S    | 10 F Z O   | NEG               |  |
| 14 | 2T    | 25 H O A   |                   |  |
| 15 | 2A    | 15 A       |                   |  |
| 16 | 6T    | 0 L F O 5  | NNP               |  |
| 17 | 2B    | 11 F Z O A |                   |  |
| 18 | 6T    | 0 K N O O  | require           |  |
| 19 | N 7Y  | 1038 C O   |                   |  |
| 20 | 6T    | 0 L Z O O  | put               |  |
| 21 | 2A    | 8 Z E O    | delimiter         |  |
| 22 | OLA   | 64 A Z     |                   |  |
| 23 | 2S    | 1 F Z 1    | ADD               |  |
| 24 | N OS  | 1 A        | SUB               |  |
| 25 | 6T    | 0 Z W O O  | FTL(macro-order)  |  |
| 26 | 2T    | 0 Y O A    |                   |  |
|    | DC    |            |                   |  |
|    | DO    |            |                   |  |

relational operators

|    |      |          |   |
|----|------|----------|---|
|    | DA   | O F K O  |   |
|    | DI   |          |   |
| 0  | 2A   | 13       | A |
| 1  | 6T   | 0 L F 0  | 5 |
| 2  | 6T   | 0 R F 0  | 6 |
| 3  | 2B   | 11 F Z 0 | A |
| 4  | 6T   | 0 K N 0  | 0 |
| 5  | N 7Y | 1067 C   | 0 |
| 6  | 2B   | 29 Y E 1 | A |
| 7  | 6T   | 0 L Z 0  | 0 |
| 8  | 2S   | 1 Y E 2  |   |
| 9  | OS   | 8 Z E 0  |   |
| 10 | 1S   | 9        | A |
| 11 | 2T   | 25 F H 0 | A |
|    | *DC  |          |   |
|    | DO   |          |   |

NNP  
conditional expressions

require

put

delimiter

FTL etc.

multiplying operators and to the power

|    | DA    | O F L O    |                |
|----|-------|------------|----------------|
|    | DI    |            |                |
| 0  | 2A    | 17         | A              |
| 1  | 2S    | 8 Z E 0    | delimiter      |
| 2  | OLS   | 69         | to the power ? |
| 3  | Y 2A  | 19         | A Z            |
| 4  | 6T    | 0 L F 0 5  | NNP            |
| 5  | 2B    | 11 F Z 0 A |                |
| 6  | 6T    | 0 K N 0 0  | require        |
| 7  | N 7Y  | 1039 C 0   |                |
| 8  | 6T    | 0 L Z 0 0  | put            |
| 9  | 2S    | 8 Z E 0    |                |
| 10 | U OLS | 69         | A Z            |
| 11 | OS    | 10 F Z 0   |                |
| 12 | 1S    | 81         | A              |
| 13 | Y OS  | 19 F Z 0   |                |
| 14 | 2T    | 25 F H 0 A | FTL etc.       |
|    | DC    |            |                |
|    | DO    |            |                |

logical "not"

|    | DA   | O F R O     |                       |
|----|------|-------------|-----------------------|
|    | DI   |             |                       |
| 0  | 2B   | 2 Y E 2 A   |                       |
| 1  | 6T   | 0 K N 0 0   | require               |
| 2  | N 7Y | 1068 C 0    |                       |
| 3  | 2B   | 30 Y E 4 A  |                       |
| 4  | 6T   | 0 L Z 0 0   | put                   |
| 5  | 2B   | 26 Z E 0    |                       |
| 6  | 2S   | 32767 X 0 B |                       |
| 7  | 1S   | 4 Y E 2 Z   | forbid repeated "not" |
| 8  | Y 7Y | 1068 C 0    |                       |
| 9  | 6T   | 0 L E 0 4   | PCP                   |
| 10 | 2S   | 4 Y E 2     |                       |
| 11 | 2T   | 25 F H 0 A  | FTL etc.              |
|    | DC   |             |                       |
|    | DO   |             |                       |

logical operators

|    | DA   | O F S O    |                         |
|----|------|------------|-------------------------|
|    | DI   |            |                         |
| 0  | 2A   | 88         | A                       |
| 1  | 1A   | 8 Z E 0    |                         |
| 2  | 6T   | 0 L F 0 5  | NNP                     |
| 3  | 6T   | 0 R F 0 6  | conditional expressions |
| 4  | 2B   | 5 Y E 2 A  |                         |
| 5  | 6T   | 0 K N 0 0  | require                 |
| 6  | N 7Y | 1069 C 0   |                         |
| 7  | 6T   | 0 L Z 0 0  | put                     |
| 8  | 2A   | 12 Z E 0   |                         |
| 9  | 2LA  | 3          | A Z                     |
| 10 | Y 7Y | 1069 C 0   |                         |
| 11 | 2S   | 88         | A                       |
| 12 | 1S   | 8 Z E 0    |                         |
| 13 | 2P   | 15 SS      |                         |
| 14 | OS   | 8 Z E 0    | delimiter               |
| 15 | 1S   | 9          | A                       |
| 16 | 2T   | 25 F H 0 A | FTL etc.                |
|    | DC   |            |                         |
|    | DO   |            |                         |

? or stopcode

|    | DA    | O F T O    |                          |
|----|-------|------------|--------------------------|
|    | DI    |            |                          |
| 0  | 6T    | 0 R W 0 5  | backward scanner V       |
| 1  | 2B    | 0          | A                        |
| 2  | 2S    | 73         | A                        |
| 3  | 6T    | 0 U E 0 2  | FOT(stop)                |
| 4  | 2B    | 1          | A                        |
| 5  | 7B    | 0 Z 0      |                          |
| 6  | 2S    | 26 Z E 1   |                          |
| 7  | U 1S  | 6 E 1      | Z PPP = LPSL ?           |
| 8  | Y 2S  | 12 E 1     | Z APC                    |
| 9  | Y 2S  | 11 E 0     | Z OBC                    |
| 10 | Y 2S  | 19 E 0     |                          |
| 11 | Y 1S  | 22 E 0     | Z NLSC = INLSC           |
| 12 | Y 2S  | 26 E 0     |                          |
| 13 | Y 1S  | 29 E 0     | Z TLSC = ITLSC           |
| 14 | Y 3B  | 25 E 0     |                          |
| 15 | Y OB  | 23 E 0     | Z PLIE = PLIB            |
| 16 | Y 2S  | 5 E 1      | Z sum check              |
| 17 | N 7Y  | 1036 C 0   | something wrong          |
| 18 | 2B    | 6 E 1      | Z                        |
| 19 | N 1B  | 1          | A                        |
| 20 | N 6B  | 6 E 1      |                          |
| 21 | N OB  | 25 E 1     | PSLB                     |
| 22 | N 2A  | 0 X 0 B    |                          |
| 23 | N 4P  | AS         |                          |
| 24 | N 3P  | 21 AA      |                          |
| 25 | N 4P  | AB         |                          |
| 26 | N 2LS | 32767      | A                        |
| 27 | N 6T  | 0 U E 0 2  | FOT(ystack list)         |
| 28 | N 2T  | 18 F T 0 A |                          |
| 29 | 2A    | 3 D 0      | P                        |
| 30 | Y 6T  | 0 U R 0 3  | punch end of object tape |
| 31 | 2A    | 8          | A                        |
|    | DC    |            |                          |
|    | DO    |            |                          |

DA O F T 1  
DI  
0 U 2LA 26 X 0 Z  
1 Y 2T 31 T 0 A  
2 7Y 1001 C 0 end of translation  
DC  
DO

go to

|   | DA   |      | O | F | W | O |   |
|---|------|------|---|---|---|---|---|
|   | DI   |      |   |   |   |   |   |
| 0 | 2B   |      | 0 | Y | Z | 0 | A |
| 1 | 6T   |      | 0 | K | N | 0 | 0 |
| 2 | N 7Y | 1056 | C | 0 |   |   |   |
| 3 | 6T   |      | 0 | L | Z | 0 | 0 |
| 4 | 2S   | 12   | Y | Z | 0 |   |   |
| 5 | 6T   |      | 0 | Z | W | 0 | 0 |
| 6 | 2T   |      | 0 | Y | 0 | A |   |
|   | DC   |      |   |   |   |   |   |
|   | DO   |      |   |   |   |   |   |

require

put

FTL(JU)

if

|    | DA    | O F U O    |   |                |
|----|-------|------------|---|----------------|
|    | DI    |            |   |                |
| 0  | 2S    | 12 Z E 0   |   |                |
| 1  | U 2LS | 2 F Z 0    | Z | SFLA           |
| 2  | Y 2T  | 11 U 0 A   |   | <u>if</u> E    |
| 3  | 2B    | 9 Y E 2 A  |   |                |
| 4  | 6T    | 0 K N 0 0  |   | require        |
| 5  | N 7Y  | 1070 C 0   |   |                |
| 6  | 6T    | 0 L Z 0 0  |   | put            |
| 7  | 2S    | 12 Z E 0   |   |                |
| 8  | 6T    | 0 W 0 0    |   | FTL(Flag word) |
| 9  | 2S    | 15 Y E 2   |   | BifS           |
| 10 | 2T    | 19 F U 0 A |   |                |
| 11 | 2B    | 13 Y E 2 A |   |                |
| 12 | 6T    | 0 K N 0 0  |   | require        |
| 13 | N 7Y  | 1070 C 0   |   |                |
| 14 | 6T    | 0 L E 0 4  |   | PCP            |
| 15 | 6T    | 0 W L 0 4  |   | PSE            |
| 16 | 2S    | 12 Z E 0   |   |                |
| 17 | 6T    | 0 W 0 0    |   | FTL(Flag word) |
| 18 | 2S    | 16 Y E 2   |   | BifE           |
| 19 | 6T    | 0 Z W 0 0  |   | FTL(bracket)   |
| 20 | 2T    | 0 Y 0 A    |   |                |
|    | DC    |            |   |                |
|    | DO    |            |   |                |

then

|    | DA    | O F Y O     |                         |
|----|-------|-------------|-------------------------|
| 0  | DI 2A | 0           | A                       |
| 1  | 6T    | 0 L F 0 5   | NNP                     |
| 2  | 6T    | 0 R F 0 6   | conditional expressions |
| 3  | 2S    | 12 Z E 0    |                         |
| 4  | U 2LS | 3           | A Z                     |
| 5  | Y 7Y  | 1071 C 0    |                         |
| 6  | 2B    | 17 Y E 2 A  |                         |
| 7  | 6T    | 0 K N 0 0   | require                 |
| 8  | N 7Y  | 1071 C 0    |                         |
| 9  | 6T    | 0 L Z 0 0   | put                     |
| 10 | 2B    | 26 Z E 0    |                         |
| 11 | 2S    | 32767 X 0 B |                         |
| 12 | U 1S  | 15 Y E 2 Z  | BifS on transl. list    |
| 13 | Y 2B  | 11 Y E 3 A  |                         |
| 14 | Y 6T  | 0 L Z 0 0   | SFLA & OFLA             |
| 15 | 2B    | 26 Z E 0    |                         |
| 16 | 2S    | 32767 X 0 B |                         |
| 17 | Y 2T  | 21 F Y 0 A  |                         |
| 18 | U 1S  | 16 Y E 2 Z  |                         |
| 19 | N 7Y  | 1071 C 0    |                         |
| 20 | 2S    | 16 Y E 2    |                         |
| 21 | 1S    | 2           | A                       |
| 22 | 6S    | 32767 X 0 B | replace bracket         |
| 23 | 2B    | 0           | A                       |
| 24 | 2S    | 2           | A                       |
| 25 | 6T    | 0 U E 0 2   | FOT(ICOJU)              |
| 26 | 2B    | 12          | A                       |
| 27 | 6T    | 0 U E 0 2   | FOT(D12)                |
| 28 | 2T    | 0 Z Y 0 A   |                         |
|    | DC    |             |                         |
|    | DO    |             |                         |

else

|    | DA   | O F N O     |                                  |
|----|------|-------------|----------------------------------|
| 0  | 2A   | 0           | A                                |
| 1  | 6T   | 0 L F 0 5   | NNP                              |
| 2  | 6T   | 0 R F 0 6   | conditional expressions          |
| 3  | 6T   | 0 R H 0 6   | for statements                   |
| 4  | 2B   | 21 Y E 2 A  |                                  |
| 5  | 6T   | 0 K N 0 0   | require                          |
| 6  | N 7Y | 1072 C 0    |                                  |
| 7  | 6T   | 0 L Z 0 0   | put                              |
| 8  | 2B   | 26 Z E 0    |                                  |
| 9  | 2S   | 32767 X 0 B |                                  |
| 10 | OS   | 2           | A                                |
| 11 | U 1S | 15 Y E 2    | Z BthenS on translator list      |
| 12 | Y 2S | 2 F Z 0     |                                  |
| 13 | Y 4S | 12 Z E 0    | SFLA                             |
| 14 | Y 2T | 22 F N 0 A  |                                  |
| 15 | U 1S | 16 Y E 2    | Z                                |
| 16 | N 7Y | 1072 C 0    |                                  |
| 17 | 2S   | 5 F Z 0     |                                  |
| 18 | 4S   | 12 Z E 0    | OFLA                             |
| 19 | 2S   | 12 E 0      |                                  |
| 20 | 2LS  | 31          | A Z                              |
| 21 | Y 7Y | 1072 C 0    |                                  |
| 22 | 6T   | 0 L W 0 3   | implicit jump                    |
| 23 | 2B   | 1           | A                                |
| 24 | 5B   | 26 Z E 0    |                                  |
| 25 | 6T   | 0 S F 0 1   | FTL(this moment's PRA)           |
| 26 | 2S   | 15 Y E 2    |                                  |
| 27 | Y 1S | 4           | A                                |
| 28 | N 1S | 5           | A                                |
| 29 | 6T   | 0 Z W 0 0   | BelseS<br>BelseE<br>FTL(bracket) |
| 30 | N 2B | 26 E 0      |                                  |
| 31 | N 2S | 32765 X 0 B |                                  |
|    | DC   |             |                                  |
|    | DO   |             |                                  |

DA    O F N 1  
DI  
0 N 3LS 31            A  
1 N 6S 32765 X 0 B  
2 N 2S 12 Z E 0  
3 N 2LS 31            A  
4 N 4S 32765 X 0 B  
5 Y 2B 4 Y E 5 A  
6 Y 6T 0 L Z 0 0  
7    2T 0 Z Y 0 A  
DC  
DO

store T in Flag word  
in translator list

FOFLA := 0

for

|   |      |      |   |   |   |     |
|---|------|------|---|---|---|-----|
|   | DA   |      | O | H | Z | O   |
|   | DI   |      |   |   |   |     |
| 0 | 2B   |      | 3 | Y | E | 3 A |
| 1 | 6T   |      | 0 | K | N | 0 0 |
| 2 | N 7Y | 1074 | C | O |   |     |
| 3 | 6T   |      | 0 | L | Z | 0 0 |
| 4 | 6T   |      | 1 | S | E | 0 4 |
| 5 | 2T   |      | 0 | Z | Y | 0 A |
|   | DC   |      |   |   |   |     |
|   | DO   |      |   |   |   |     |

require

put  
INB

do

|    | DA    | O H E O    |     |
|----|-------|------------|-----|
|    | DI    |            |     |
| 0  | 2A    | 0          | A   |
| 1  | 6T    | 0 L F 0 5  |     |
| 2  | 6T    | 0 R F 0 6  |     |
| 3  | 2B    | 11 Y E 3 A |     |
| 4  | 6T    | 0 K N 0 0  |     |
| 5  | N 7Y  | 1076 C 0   |     |
| 6  | 6T    | 0 L Z 0 0  |     |
| 7  | 2S    | 12 Z E 0   |     |
| 8  | U 2LS | 15         | A Z |
| 9  | Y 7Y  | 1076 C 0   |     |
| 10 | U 2LS | 15 Y E 3   | Z   |
| 11 | Y 2T  | 18 H E 0 A | Z   |
| 12 | U 2LS | 8          | A Z |
| 13 | N 7Y  | 1076 C 0   |     |
| 14 | 2S    | 15 Y E 3   |     |
| 15 | 5S    | 12 Z E 0   |     |
| 16 | 2S    | 21         | A   |
| 17 | 2T    | 25 H E 0 A |     |
| 18 | U 2LS | 8          | A Z |
| 19 | Y 7Y  | 1076 C 0   |     |
| 20 | U 2LS | 16 Y E 3   | Z   |
| 21 | N 2S  | 16 Y E 3   |     |
| 22 | N 5S  | 12 Z E 0   |     |
| 23 | N 2S  | 24         | A   |
| 24 | Y 2S  | 20         | A   |
| 25 | 2B    | 0          | A   |
| 26 | 6T    | 0 U E 0 2  |     |
| 27 | 2B    | 0          | A   |
| 28 | 2S    | 3          | A   |
| 29 | 6T    | 0 U E 0 2  |     |
| 30 | 2S    | 4 F Z 1    |     |
| 31 | 2B    | 26 Z E 0   |     |
|    | DC    |            |     |
|    | DO    |            |     |

NNP  
conditional expressions

require

put

WIFLA

SUFLA

FOT(FOR2 or 3 or 6)

FOT(RET)

DA O H E 1  
DI  
0 U 1S 32767 X O B Z  
1 N 7Y 1076 C O  
2 1S 1 A  
3 6S 32767 X O B  
4 2S 13 U Z O  
5 2P 15 SS  
6 OLS 12 U Z O  
7 OLS 26 F Z O  
8 6S 32763 X O B  
9 2B 0 A  
10 2S 18 A  
11 6T 0 U E 0 2  
12 2T 15 H E 1 A  
13 6T 0 U E 0 2  
14 2T 0 Z Y 0 A  
15 2B 5 A  
16 2S 8 A  
17 OS 30 Z E 1  
18 OS 30 E 1  
19 6T 0 U E 0 2  
20 2B 12 A  
21 2T 13 H E 1 A

DC  
DO

Bfor on translator list

replace by Bdo

this moment's PRA

FOT(FORO)

FOT(D12)

2 \* number of labels  
FOT(LN)

distribution of ", "

|    | DA    | O     | H | F | O |     |
|----|-------|-------|---|---|---|-----|
|    | DI    |       |   |   |   |     |
| 0  | 2A    | 12    | Z | E | O |     |
| 1  | U 2LA | 4     | Y | E | O | Z   |
| 2  | N 2T  | 0     | T | H | O | A   |
| 3  | U 2LA | 16384 |   |   |   | A Z |
| 4  | Y 2T  | 8     | H | F | O | A   |
| 5  | U 2LA | 0     | F | Z | O | Z   |
| 6  | N 2T  | 0     | T | K | O | A   |
| 7  | 2T    | 0     | T | L | O | A   |
| 8  | U 2LA | 1024  |   |   |   | A Z |
| 9  | N 2T  | 0     | T | R | O | A   |
| 10 | U 2LA | 4096  |   |   |   | A Z |
| 11 | N 2T  | 0     | T | S | O | A   |
| 12 | U 2LA | 224   |   |   |   | A Z |
| 13 | N 2T  | 0     | T | T | O | A   |
| 14 | U 2LA | 2     | F | Z | 1 | Z   |
| 15 | N 2T  | 0     | T | U | O | A   |
| 16 | 2A    | 0     |   |   |   | A   |
| 17 | 6T    | 0     | L | F | O | 5   |
| 18 | 6T    | 0     | R | F | O | 6   |
| 19 | 2A    | 12    | Z | E | O |     |
| 20 | U 2LA | 13    | F | Z | 1 | Z   |
| 21 | N 2T  | 0     | T | Y | O | A   |
| 22 | 2B    | 26    | Z | E | O |     |
| 23 | 2S    | 32767 | X | O | B |     |
| 24 | U OLS | 0     | Y | E | 1 | Z   |
| 25 | Y 2T  | 0     | T | N | O | A   |
| 26 | U OLS | 1     | Y | E | 1 | Z   |
| 27 | Y 2T  | 0     | W | Z | O | A   |
| 28 | 7Y    | 1063  | C | O |   |     |
|    | DC    |       |   |   |   |     |
|    | DO    |       |   |   |   |     |

VAFLA  
in value list  
PROFLA  
  
NIFLA  
formal parameter part  
specification part  
AFLA  
array declaration  
SIFLA  
switch  
  
type list  
PAFLA  
actual parameter list  
  
NNP  
conditional expressions  
FOFLA  
for list  
  
Bindex on translator list ?  
  
index separator  
Bboundpair on transl.list?  
bound pair separator

": "

|    |       |            |                         |
|----|-------|------------|-------------------------|
|    | DA    | O H H O    |                         |
|    | DI    |            |                         |
| 0  | 2A    | 12 Z E O   |                         |
| 1  | U 2LA | 2 F Z O    | Z SFLA                  |
| 2  | Y 2T  | 16 H H O A | bound pair              |
| 3  | 2B    | 8 Y Z O A  |                         |
| 4  | 6T    | 0 K N O O  | require                 |
| 5  | N 7Y  | 1055 C O   |                         |
| 6  | 6T    | 0 L Z O O  | put                     |
| 7  | 2A    | 1 Z E 1    | name code II            |
| 8  | 3P    | 16 AA      | isolate number in       |
| 9  | 4P    | AB         | address pile            |
| 10 | 2A    | 13 U Z O   |                         |
| 11 | 2P    | 15 AA      |                         |
| 12 | OA    | 12 Z O     | this moment's PRA       |
| 13 | OB    | 27 Z E O   | BAP                     |
| 14 | 6A    | 0 X O B    |                         |
| 15 | 2T    | 0 Z Y O A  |                         |
| 16 | 2A    | 0 A        |                         |
| 17 | 6T    | 0 L F O 5  | NNP                     |
| 18 | 6T    | 0 R F O 6  | conditional expressions |
| 19 | 2B    | 4 Y Z O A  |                         |
| 20 | 6T    | 0 K N O O  | require                 |
| 21 | N 7Y  | 1055 C O   |                         |
| 22 | 6T    | 0 L Z O O  | put                     |
| 23 | 2T    | 0 Z Y O A  |                         |
|    | DC    |            |                         |
|    | DO    |            |                         |

distribution of ";"

|    | DA    | O     | H | K | O |     |                           |
|----|-------|-------|---|---|---|-----|---------------------------|
|    | DI    |       |   |   |   |     |                           |
| 0  | 2A    | 12    | Z | E | 0 |     |                           |
| 1  | U 2LA | 2     | F | Z | 0 | Z   | SFLA                      |
| 2  | N 2T  | 16    | H | K | 0 | A   | end of statement          |
| 3  | U 2LA | 16384 |   |   |   | A Z | PROFLA                    |
| 4  | Y 2T  | 10    | H | K | 0 | A   | not in proc.heading       |
| 5  | U 2LA | 16    | F | Z | 1 | Z   | VAFLA                     |
| 6  | N 2T  | 0     | S | N | 0 | A   | value part                |
| 7  | U 2LA | 24    | Y | E | 1 | Z   |                           |
| 8  | N 2T  | 24    | H | K | 0 | A   |                           |
| 9  | 2T    | 0     | S | U | 0 | A   | formal parameter part     |
| 10 | U 2LA | 4096  |   |   |   | A Z | SIFLA                     |
| 11 | N 2T  | 0     | T | Z | 0 | A   | switch declaration        |
| 12 | U 2LA | 1024  |   |   |   | A Z | AFLA                      |
| 13 | N 2T  | 0     | T | E | 0 | A   | array declaration         |
| 14 | U 2LA | 224   |   |   |   | A Z |                           |
| 15 | N 2T  | 0     | T | F | 0 | A   | variable declaration      |
| 16 | 6T    | 0     | R | L | 0 | 7   | end of statement          |
| 17 | N 7Y  | 1054  | C | 0 |   |     |                           |
| 18 | 2B    | 26    | Z | E | 0 |     |                           |
| 19 | 2A    | 32767 | X | 0 | B |     |                           |
| 20 | OLA   | 23    | F | Z | 0 | Z   | Bproc on translator list? |
| 21 | Y 6T  | 0     | R | W | 0 | 5   | backward scanner V        |
| 22 | Y 6T  | 13    | R | F | 0 | 3   | FOT(this moment'sPRA)     |
| 23 | 2T    | 0     | Z | Y | 0 | A   |                           |
| 24 | 2A    | 0     | Z | E | 1 |     | name code I               |
| 25 | U 2LA | 17    | F | Z | 0 | Z   | non-formal ?              |
| 26 | N 2T  | 0     | S | Y | 0 | A   | specification part        |
| 27 | U 2LA | 15    | F | Z | 0 | Z   | require function          |
| 28 | N 2LA | 0     | F | Z | 0 | Z   | procedure                 |
| 29 | Y 7Y  | 1036  | C | 0 |   |     |                           |
| 30 | 2T    | 0     | S | U | 0 | A   | formal parameter part     |
|    | DC    |       |   |   |   |     |                           |
|    | DO    |       |   |   |   |     |                           |

:=

|    | DA    | O     | H | L | O   |
|----|-------|-------|---|---|-----|
|    | DI    |       |   |   |     |
| 0  | 2A    | 0     |   |   | A   |
| 1  | 6A    | 5     | Z | E | 2   |
| 2  | 2S    | 12    |   | E | 0   |
| 3  | U 2LS | 4096  |   |   | A Z |
| 4  | N 2T  | 0     | W | H | 0 A |
| 5  | U 2LS | 2048  |   |   | A Z |
| 6  | Y 2T  | 13    | H | L | 0 A |
| 7  | 2B    | 26    | Z | E | 0   |
| 8  | 2A    | 32767 | X | 0 | B   |
| 9  | OLA   | 14    | Y | E | 1 Z |
| 10 | N 7Y  | 1065  | C | 0 |     |
| 11 | 2B    | 1     |   |   | A   |
| 12 | 5B    | 26    | Z | E | 0   |
| 13 | U 2LS | 3     | F | Z | 1 Z |
| 14 | N 2T  | 0     | W | K | 0 A |
| 15 | 2A    | 49    |   |   | A   |
| 16 | OA    | 16    | F | Z | 1   |
| 17 | 6A    | 6     | Z | E | 2   |
| 18 | 2S    | 1     |   |   | A   |
| 19 | 6S    | 5     |   | E | 2   |
| 20 | 2A    | 0     |   | E | 1   |
| 21 | U 2LA | 15    | F | Z | 0 Z |
| 22 | Y 2T  | 11    | H | L | 1 A |
| 23 | 4S    | 5     | Z | E | 2   |
| 24 | U 2LA | 19    | F | Z | 0 Z |
| 25 | Y 2A  | 51    |   |   | A   |
| 26 | N 2A  | 52    |   |   | A   |
| 27 | OA    | 16    | F | Z | 1   |
| 28 | 6A    | 6     | Z | E | 2   |
| 29 | 2B    | 26    |   | E | 0   |
| 30 | 2S    | 32767 | X | 0 | B   |
| 31 | U 1S  | 23    | F | Z | 0 Z |
|    | DC    |       |   |   |     |
|    | DO    |       |   |   |     |

SIFLA

:= in switch declar.

LEFLA

no subscript expr.to the left

ITAR on translator list ?

postpone indexing

FOFLA

:= in for statement

ST

macro-order

name code I

non-procedure

STIP

STRP

Bproc on translator list ?

|    | DA    | O     | H | L | 1 |                            |
|----|-------|-------|---|---|---|----------------------------|
|    | DI    |       |   |   |   |                            |
| 0  | N 1S  | 0     | F | Z | 0 | Z BbeginP                  |
| 1  | N 1B  | 1     |   |   |   | A                          |
| 2  | N 2T  | 30    | H | L | 0 | A                          |
| 3  | 2S    | 32764 | X | 0 | B |                            |
| 4  | 1S    | 16    | Z | E | 1 | Z                          |
| 5  | N 2T  | 1     | H | L | 1 | A                          |
| 6  | 6B    | 13    | Z | E | 2 |                            |
| 7  | 6T    | 10    | H | R | 0 | 0 require function         |
| 8  | 2S    | 2     | F | Z | 1 |                            |
| 9  | U 2LS | 32766 | X | 0 | B | Z mark value assignment in |
| 10 | Y 4S  | 32766 | X | 0 | B | Z name code                |
| 11 | 2A    | 5     |   |   |   | A                          |
| 12 | 6T    | 0     | L | F | 0 | 5 NNP                      |
| 13 | N 2B  | 13    | Z | E | 2 |                            |
| 14 | N 2S  | 32761 | X | 0 | B |                            |
| 15 | N OLS | 30    | Y | E | 4 |                            |
| 16 | N 6T  | 0     | Z | W | 0 | 0 FTL(N)                   |
| 17 | 2S    | 12    | Z | E | 0 |                            |
| 18 | U 2LS | 2     | F | Z | 0 | Z SFLA                     |
| 19 | Y 2A  | 16    | F | Z | 1 |                            |
| 20 | Y OA  | 5     | Z | E | 2 |                            |
| 21 | Y 4A  | 6     | Z | E | 2 |                            |
| 22 | 2B    | 15    | Y | E | 1 | A                          |
| 23 | 6T    | 0     | K | N | 0 | 0 require                  |
| 24 | N 7Y  | 1066  | C | 0 |   |                            |
| 25 | 6T    | 0     | L | Z | 0 | 0 put                      |
| 26 | 2LA   | 8     |   |   |   | A Z                        |
| 27 | 2S    | 6     | Z | E | 2 |                            |
| 28 | Y OS  | 1024  |   |   |   | A                          |
| 29 | 6T    | 0     | Z | W | 0 | 0 FTL(macro-order)         |
| 30 | 2T    | 0     | Z | Y | 0 | A                          |
|    | DC    |       |   |   |   |                            |
|    | DO    |       |   |   |   |                            |

step

|    |      |             |                                          |
|----|------|-------------|------------------------------------------|
|    | DA   | O H R O     |                                          |
|    | DI   |             |                                          |
| 0  | 2A   | 0           | A                                        |
| 1  | 6T   | 0 L F 0 5   | NNP                                      |
| 2  | 6T   | 0 R F 0 6   | conditional expressions                  |
| 3  | 2B   | 19 Y E 3 A  |                                          |
| 4  | 6T   | 0 K N 0 0   | require                                  |
| 5  | N 7Y | 1077 C 0    |                                          |
| 6  | 6T   | 0 L Z 0 0   | put                                      |
| 7  | 2B   | 0           | A                                        |
| 8  | 2S   | 22          | A                                        |
| 9  | 2T   | 13 H E 1 A  | FOT(D <sup>1</sup> / <sub>2</sub> ) etc. |
| 10 | 2B   | 16 Z E 1    | insertion in :=                          |
| 11 | 2S   | 32767 X 0 B |                                          |
| 12 | 2LS  | 0 F Z 0 Z   |                                          |
| 13 | Y 7Y | 1066 C 0    |                                          |
| 14 | 2T   | 8 X 0 E     |                                          |
|    | DC   |             |                                          |
|    | DO   |             |                                          |

/ erratum: FOT(FOR<sup>4</sup>) etc.

until

|   |      |      |   |   |   |     |
|---|------|------|---|---|---|-----|
|   | DA   |      | O | H | S | O   |
|   | DI   |      |   |   |   |     |
| 0 | 2A   |      | 0 |   |   | A   |
| 1 | 6T   |      | 0 | L | F | 0 5 |
| 2 | 6T   |      | 0 | R | F | 0 6 |
| 3 | 2B   | 23   | Y | E | 3 | A   |
| 4 | 6T   |      | 0 | K | N | 0 0 |
| 5 | N 7Y | 1079 | C |   |   | 0   |
| 6 | 6T   |      | 0 | L | Z | 0 0 |
| 7 | 2B   |      | 0 |   |   | A   |
| 8 | 2S   | 23   |   |   |   | A   |
| 9 | 2T   | 13   | H | E | 1 | A   |
|   | DC   |      |   |   |   |     |
|   | DO   |      |   |   |   |     |

NNP  
conditional expressions

require

put

FOT(FOR5) etc.

while

|    |      |              |   |
|----|------|--------------|---|
|    | DA   | O H T O      |   |
|    | DI   |              |   |
| 0  | 2A   | 0            | A |
| 1  | 6T   | 0 L F 0 5    |   |
| 2  | 6T   | 0 R F 0 6    |   |
| 3  | 2B   | 27 Y E 3 A   |   |
| 4  | 6T   | 0 K N 0 0    |   |
| 5  | N 7Y | 1080 C 0     |   |
| 6  | 6T   | 0 L Z 0 0    |   |
| 7  | 2B   | 0            | A |
| 8  | 2S   | 49           | A |
| 9  | 2T   | 13 H E 1 A   |   |
| 10 | 2B   | 25 Z E 1     |   |
| 11 | 0B   | 24 Z E 1     |   |
| 12 | 2S   | 10 Z E 2     |   |
| 13 | OLS  | 14 F Z 1     |   |
| 14 | 6S   | 32767 X 0 B  |   |
| 15 | 1B   | 1            | A |
| 16 | 4T   | 14 H T 0 0 P |   |
| 17 | 2T   | 8 X 0 E      |   |
|    | DC   |              |   |
|    | DO   |              |   |

NNP  
conditional expressions

require

put

FOT(ST) etc.  
insertion in closing  
square bracket

"("

|    |       |            |     |
|----|-------|------------|-----|
|    | DA    | O H W O    |     |
|    | DI    |            |     |
| 0  | 2S    | 12 Z E O   |     |
| 1  | U 2LS | 16384      | A Z |
| 2  | N 2T  | 26 H W O A |     |
| 3  | U 2LS | 31         | A Z |
| 4  | Y 2T  | 0 R T O A  |     |
| 5  | 2A    | 31         | A   |
| 6  | 6T    | 0 L F O 5  |     |
| 7  | 2A    | 0 Z E 1    |     |
| 8  | U 2LA | 15 F Z O   | Z   |
| 9  | Y 7Y  | 1062 C O   |     |
| 10 | 2S    | 12 Z E O   |     |
| 11 | 6T    | 0 W O O    |     |
| 12 | U 2LA | 2 F Z O    | Z   |
| 13 | 2S    | 1 Z E 1    |     |
| 14 | 3P    | 16 SS      |     |
| 15 | Y OLS | 128        | A   |
| 16 | Y OLS | 2 F Z O    |     |
| 17 | Y 6T  | 0 Z W O O  |     |
| 18 | Y 2S  | 21 Y E O   |     |
| 19 | Y 6T  | 0 Z W O O  |     |
| 20 | Y 6T  | 0 R R O 1  |     |
| 21 | Y 2B  | 22 Y E O A |     |
| 22 | Y 2T  | 7 R T O A  |     |
| 23 | OLS   | 65         | A Z |
| 24 | N 7Y  | 1040 C O   |     |
| 25 | 2T    | 4 R T O A  |     |
| 26 | U 2LS | 2 F Z O    | Z   |
| 27 | Y 2T  | 0 R S O A  |     |
| 28 | 2T    | 3 H W O A  |     |
|    | DC    |            |     |
|    | DO    |            |     |

PROFLA  
in formal par. part ?  
T  
in expression

NNP  
name code I  
require procedure

FTL(Flag word)  
non-macro order ?  
name code II

FTL(check number)

FTL(B(actpar)  
IPW(insert parameter word)

require and put etc.

require one parameter

SFLA  
indeed in form.p.part

" ) "

|    |                  |                         |
|----|------------------|-------------------------|
| DA | O H U O          |                         |
| DI |                  |                         |
| 0  | 2A 12 Z E O      |                         |
| 1  | U 2LA 16384 A Z  | PROFLA                  |
| 2  | N 2T 0 W E O A   | in formal par. part     |
| 3  | U 2LA 2 F Z 1 Z  | PAFLA                   |
| 4  | N 2T 0 W F O A   | in actual par. part     |
| 5  | 2A 0 A           |                         |
| 6  | 6T 0 L F O 5     | NNP                     |
| 7  | 6T 0 R F O 6     | conditional expressions |
| 8  | 2A 12 Z E O      |                         |
| 9  | 2LA 31 A         |                         |
| 10 | 6A 31 E O        | T'                      |
| 11 | 2B 10 Y E 1 A    |                         |
| 12 | 6T 0 K N O O     | require                 |
| 13 | 2A 12 Z E O      |                         |
| 14 | 2LA 31 A         |                         |
| 15 | Y 1A 0 A P       |                         |
| 16 | Y 2B 26 Z E O    |                         |
| 17 | Y 2S 32767 X O B |                         |
| 18 | Y OLS 19 Y E 1 Z |                         |
| 19 | Y 2S 32765 X O B |                         |
| 20 | N 7Y 1064 C O    |                         |
| 21 | U 2LS 25 Y E 2 Z |                         |
| 22 | Y 2LS 26 Y E 2   |                         |
| 23 | Y OLS 27 Y E 2 Z |                         |
| 24 | Y 2LA 8 A Z      | ARFLA                   |
| 25 | Y 7Y 1078 C O    |                         |
| 26 | 6T 0 R W O 5     | backward scanner V      |
| 27 | 2B 10 Y E 1 A    |                         |
| 28 | 6T 0 L Z O O     | put                     |
| 29 | 2T 0 Z Y O A     |                         |
| DC |                  |                         |
| DO |                  |                         |

opening square bracket

|    | DA   | O    | H | Y | O |   |
|----|------|------|---|---|---|---|
|    | DI   |      |   |   |   |   |
| 0  | 2S   | 12   | Z | E | 0 |   |
| 1  | 2LS  | 1024 |   |   | A | Z |
| 2  | Y 2T | 13   | H | Y | 0 | A |
| 3  | 2B   | 20   | Y | E | 4 | A |
| 4  | 6T   | 0    | K | N | 0 | 0 |
| 5  | N 7Y | 1086 | C | 0 |   |   |
| 6  | 2S   | 12   | Z | E | 0 |   |
| 7  | 6T   | 0    | W | 0 | 0 |   |
| 8  | 2S   | 1    | Y | E | 1 |   |
| 9  | 6T   | 0    | Z | W | 0 | 0 |
| 10 | 2B   | 24   | Y | E | 4 | A |
| 11 | OB   | 0    |   |   | A | Z |
| 12 | 2T   | 6    | T | R | 0 | A |
| 13 | 2A   | 30   |   |   | A |   |
| 14 | 6T   | 0    | L | F | 0 | 5 |
| 15 | 2S   | 0    | Z | E | 1 |   |
| 16 | 2LS  | 5    | F | Z | 0 | Z |
| 17 | Y 2S | 12   | Z | E | 0 |   |
| 18 | Y 6T | 0    | W | 0 | 0 |   |
| 19 | 2B   | 24   | Y | E | 4 | A |
| 20 | 6T   | 0    | L | Z | 0 | 0 |
| 21 | 2S   | 0    | Y | E | 1 |   |
| 22 | 6T   | 0    | Z | W | 0 | 0 |
| 23 | Y 2T | 0    | Y | 0 | A |   |
| 24 | 2T   | 5    | T | N | 0 | A |
|    | DC   |      |   |   |   |   |
|    | DO   |      |   |   |   |   |

|                       |
|-----------------------|
| AFLA                  |
| non-declaration       |
| require               |
| put                   |
| FTL(Bboundpair)       |
| condition:= -         |
| "," in array segment  |
| NNP                   |
| name code I           |
| non array name ?      |
| FTL(Flag word)        |
| put                   |
| FTL(Bind)             |
| decrease check number |

closing square bracket

|    | DA    | O    | H | N | O |                           |
|----|-------|------|---|---|---|---------------------------|
|    | DI    |      |   |   |   |                           |
| 0  | 2A    | 0    |   |   | A |                           |
| 1  | 6T    | 0    | L | F | 0 | 5 NNP                     |
| 2  | 6T    | 0    | R | F | 0 | 6 conditional expressions |
| 3  | 2B    | 4    | Y | Z | 0 | A                         |
| 4  | 6T    | 0    | K | N | 0 | 0 require                 |
| 5  | N 7Y  | 1088 | C | 0 |   |                           |
| 6  | 6T    | 0    | R | W | 0 | 5 backward scanner V      |
| 7  | 6T    | 18   | H | N | 1 | 0 T' := T                 |
| 8  | U 2LA | 1024 |   |   | A | Z AFLA                    |
| 9  | N 2T  | 13   | H | N | 0 | A declaration             |
| 10 | 2B    | 30   | Y | E | 2 | A                         |
| 11 | 6T    | 0    | L | Z | 0 | 0 put                     |
| 12 | 2T    | 0    | Z | Y | 0 | A                         |
| 13 | 2S    | 1    |   |   |   | A                         |
| 14 | 4S    | 10   | E | 2 |   | dimension counter         |
| 15 | U 2LA | 256  |   |   | A | Z WOFLA                   |
| 16 | 6T    | 23   | H | N | 1 | 1 own business            |
| 17 | U 2LA | 96   |   |   | A | Z                         |
| 18 | 2S    | 16   |   |   |   | A ROAD                    |
| 19 | N OS  | 1    |   |   |   | A IOAD                    |
| 20 | 2T    | 27   | H | N | 0 | A                         |
| 21 | U 2LA | 32   |   |   | A | Z                         |
| 22 | N 2S  | 15   |   |   |   | A BAD                     |
| 23 | N 2T  | 27   | H | N | 0 | A                         |
| 24 | U 2LA | 64   |   |   | A | Z                         |
| 25 | 2S    | 14   |   |   |   | A IAD                     |
| 26 | Y 1S  | 1    |   |   |   | A RAD                     |
| 27 | 2B    | 0    |   |   |   | A                         |
| 28 | 6T    | 0    | U | E | 0 | 2 FOT(array declarator)   |
| 29 | 2S    | 9    | Z | E | 2 |                           |
| 30 | 2B    | 6    |   |   |   | A                         |
| 31 | 6T    | 0    | U | E | 0 | 2 FOT(N)                  |
|    | DC    |      |   |   |   |                           |
|    | DO    |      |   |   |   |                           |

DA O H N 1.  
 DI  
 0 U 2LA 256 A Z  
 1 N 6T 17 W W 0 0  
 2 Y 2S 21 Z E 1  
 3 2B 5 A  
 4 6T 0 U E 0 2  
 5 2S 10 Z E 2  
 6 N OS 10 E 2  
 7 Y OS 4 A  
 8 N OS 6 A  
 9 6S 11 E 2  
 10 2X 9 E 2  
 11 N 4S 23 E 1  
 12 Y 4S 21 E 1  
 13 6T 0 W W 0 1  
 14 2A 0 A  
 15 6A 9 Z E 2  
 16 6A 10 E 2  
 17 2T 10 H N 0 A  
 18 2A 12 Z E 0  
 19 2LA 31 A  
 20 6A 31 E 0  
 21 2A 12 E 0  
 22 2T 8 X 0 E  
 23 Y 2T 21 H N 0 A  
 24 2S 9 Z E 2  
 25 4S 24 Z E 1  
 26 6S 0 X 0  
 27 6T 10 H T 0 0  
 28 2T 9 X 0 E  
 DC  
 DO

WOFLA  
 own location

FOT(LN)  
 dimension counter

$2n + 6$  or  $n + 4$

ss  
 qq  
 FNC II  
 restore  
 dimension counter and  
 array counter

$T' := T$

array counter  
 ppp

opening string quote

|    |      |            |                    |
|----|------|------------|--------------------|
|    | DA   | O K Z O    |                    |
|    | DI   |            |                    |
| 0  | 2B   | 30 Y E 2 A |                    |
| 1  | 6T   | 0 K N 0 0  | require            |
| 2  | N 7Y | 1073 C 0   |                    |
| 3  | 6T   | 0 L Z 0 0  | put                |
| 4  | 6T   | 0 E 0 4    | PCP                |
| 5  | 2S   | 2 Y E 3    |                    |
| 6  | 6T   | 0 Z W 0 0  | FTL(Bstrq)         |
| 7  | 2S   | 1 A        |                    |
| 8  | 6S   | 7 E 2      |                    |
| 9  | 6T   | 0 K 0 3    | NRS                |
| 10 | 2S   | 1 A        |                    |
| 11 | U 1A | 102 A Z    |                    |
| 12 | Y 4S | 7 E 2      |                    |
| 13 | U 1A | 103 A Z    |                    |
| 14 | Y 5S | 7 E 2 Z    |                    |
| 15 | 2B   | 9 A        |                    |
| 16 | Y 2S | 127 A      | closing symbol     |
| 17 | N 4P | AS         |                    |
| 18 | 6T   | 0 U E 0 2  | FOT(string symbol) |
| 19 | N 2T | 9 K Z 0 A  |                    |
| 20 | 2A   | 1 A        |                    |
| 21 | 6A   | 31 Z E 0   | T' := 1            |
| 22 | 2T   | 0 Z Y 0 A  |                    |
|    | DC   |            |                    |
|    | DO   |            |                    |

end

DA O K E O  
 DI  
 0 6T O R L O 7  
 1 N 7Y 1051 C O  
 2 2B 26 Z E O  
 3 2A 32767 X O B  
 4 U OLA O F Z 1 Z  
 5 Y 2T 13 K E O A  
 6 U OLA 31 F Z O Z  
 7 Y 2T 11 K E O A  
 8 OLA O F Z O Z  
 9 N 7Y 1051 C O  
 10 2A 1 A Z  
 11 6T O R W O 5  
 12 6T 13 F O 3  
 13 Y 6T O W O 5  
 14 2T O Z Y O A  
 DC  
 DO

end of statement

BbeginC on translator list?

BbeginB ?

BbeginP

backward scanner V

FOT(PRA)

backward scanner V

own

DA O K F O  
DI  
0 6T 8 K H O O  
1 N 7Y 1059 C O  
2 6T 16 H O 5  
3 6T 6 S O 1  
4 2A 256 A  
5 2T 2 U O A  
DC  
DO

PROFLA

try block introduction  
require and put  
WOFLA

Boolean

try block introduction  
require and put

|    | DA   |       | O | K | H | O   |                            |
|----|------|-------|---|---|---|-----|----------------------------|
|    | DI   |       |   |   |   |     |                            |
| 0  | 6T   | 3     | K | H | O | 6   | combined call              |
| 1  | 2A   | 32    |   |   |   | A   |                            |
| 2  | 2T   | 2     | U | O | A |     |                            |
| 3  | 6T   | 8     | H | O | O |     | PROFLA = 0 ?               |
| 4  | N 6T | 4     | U | O | 1 |     | require and put for decl.  |
| 5  | Y 6T | 16    | H | O | 5 |     | try block introduction     |
| 6  | Y 6T | 11    | H | O | 1 |     | require and put for spec.  |
| 7  | 2T   | 14    | X | O |   | E   |                            |
| 8  | 2A   | 12    | Z | E | O |     |                            |
| 9  | 2LA  | 16384 |   |   |   | A Z | PROFLA                     |
| 10 | 2T   | 8     | X | O |   |     |                            |
| 11 | 2B   | 5     | Y | E | O | A   |                            |
| 12 | 6T   | 0     | K | N | O | O   | require                    |
| 13 | N 7Y | 1058  | C | O |   |     |                            |
| 14 | 6T   | 0     | L | Z | O | O   | put                        |
| 15 | 2T   | 9     | X | O |   | E   |                            |
| 16 | 2B   | 26    | Z | E | O |     |                            |
| 17 | 2A   | 0     | F | Z | 1 |     |                            |
| 18 | U 1A | 32767 | X | O | B | Z   | BbeginC on translator list |
| 19 | Y 2S | 2     |   |   |   | A   |                            |
| 20 | Y 5S | 26    | Z | E | O |     |                            |
| 21 | Y 6T | 0     | S | E | O | 4   | INB I                      |
| 22 | 2T   | 13    | X | O |   | E   |                            |
|    | DC   |       |   |   |   |     |                            |
|    | DO   |       |   |   |   |     |                            |

erratum: interchange comment of lines 4 & 6.

integer

|   |    |    |   |   |   |   |  |
|---|----|----|---|---|---|---|--|
|   | DA |    | O | K | K | O |  |
|   | DI |    |   |   |   |   |  |
| 0 | 6T | 3  | K | H | O | 6 |  |
| 1 | 2A | 64 |   |   |   | A |  |
| 2 | 2T | 2  | U | O | A |   |  |
|   | DC |    |   |   |   |   |  |
|   | DO |    |   |   |   |   |  |

see Boolean  
INFLA

real

|   |    |           |                    |
|---|----|-----------|--------------------|
|   | DA | O K L O   |                    |
|   | DI |           |                    |
| 0 | 6T | 3 K H O 6 | see <u>Boolean</u> |
| 1 | 2A | 128 A     | REFLA              |
| 2 | 2T | 2 U O A   |                    |
|   | DC |           |                    |
|   | DO |           |                    |

array

|    | DA   |      | O | K | R | O   |
|----|------|------|---|---|---|-----|
|    | DI   |      |   |   |   |     |
| 0  | 6T   |      | 8 | K | H | 0 0 |
| 1  | N 6T | 13   |   | R | O | 1   |
| 2  | Y 6T | 16   |   | H | O | 5   |
| 3  | Y 6T | 8    |   | R | O | 1   |
| 4  | 2A   | 0    |   |   |   | A   |
| 5  | 6A   | 9    | Z | E | 2 |     |
| 6  | 2A   | 1024 |   |   |   | A   |
| 7  | 2T   | 2    | K | U | O | A   |
| 8  | 2B   | 9    | Y | E | O | A   |
| 9  | 6T   | 0    | K | N | O | O   |
| 10 | N 7Y | 1061 | C | O |   |     |
| 11 | 6T   | 0    | L | Z | O | O   |
| 12 | 2T   | 9    | X | O |   | E   |
| 13 | 2B   | 17   | Y | E | O | A   |
| 14 | 2T   | 9    | K | R | O | A   |

DC  
DO

PROFLA  
require and put  
try block introduction  
require and put

array counter  
AFLA

require

put

switch

|    | DA   |      | O | K | S | O |                           |
|----|------|------|---|---|---|---|---------------------------|
|    | DI   |      |   |   |   |   |                           |
| 0  | 6T   | 8    | K | H | O | O | PROFLA                    |
| 1  | N 6T | 4    | U | O | 1 |   | require and put for spec. |
| 2  | Y 6T | 16   | H | O | 5 |   | try block introduction    |
| 3  | Y 6T | 6    | S | O | 1 |   | require and put for decl. |
| 4  | 2A   | 4096 |   |   | A |   | SIFLA                     |
| 5  | 2T   | 2    | U | O | A |   |                           |
| 6  | 2B   | 13   | Y | E | O | A |                           |
| 7  | 6T   | 0    | K | N | O | O | require                   |
| 8  | N 7Y | 1060 | C | O |   |   |                           |
| 9  | 6T   | 0    | L | Z | O | O | put                       |
| 10 | 2T   | 9    | X | O | E |   |                           |
|    | DC   |      |   |   |   |   |                           |
|    | DO   |      |   |   |   |   |                           |

procedure

|    |      |       |   |   |     |
|----|------|-------|---|---|-----|
| DA | O    | K     | T | O |     |
| DI |      |       |   |   |     |
| 0  | 6T   | 8     | K | H | O O |
| 1  | Y 6T | 16    |   | H | O 5 |
| 2  | 6T   | 13    |   | R | O 1 |
| 3  | N 2A | 512   |   |   | A   |
| 4  | Y 2A | 16384 |   |   | A   |
| 5  | 2T   | 2     |   | U | O A |
| DC |      |       |   |   |     |
| DO |      |       |   |   |     |

PROFLA  
try block introduction  
require and put  
POFLA  
PROFLA

string

|   |    |      |   |   |   |   |   |
|---|----|------|---|---|---|---|---|
|   | DA |      | O | K | W | O |   |
|   | DI |      |   |   |   |   |   |
| 0 | 6T |      | 4 | K | U | O | 1 |
| 1 | 2A | 8192 |   |   |   | A |   |
| 2 | 2T |      | 2 | K | U | O | A |
|   | DC |      |   |   |   |   |   |
|   | DO |      |   |   |   |   |   |

require and put  
STRIFLA

label

|   | DA   |      | O | K | U | O |                 |
|---|------|------|---|---|---|---|-----------------|
|   | DI   |      |   |   |   |   |                 |
| 0 | 6T   | 4    | K | U | 0 | 1 | require and put |
| 1 | 2A   | 2048 |   |   |   | A | LEFLA           |
| 2 | 4A   | 12   | Z | E | 0 |   |                 |
| 3 | 2T   | 0    |   | Y | 0 | A |                 |
| 4 | 2B   | 0    | Y | E | 0 | A |                 |
| 5 | 6T   | 0    | K | N | 0 | 0 | require         |
| 6 | N 7Y | 1057 | C | 0 |   |   |                 |
| 7 | 6T   | 0    | L | Z | 0 | 0 | put             |
| 8 | 2T   | 9    | X | 0 |   | E |                 |
|   | DC   |      |   |   |   |   |                 |
|   | DO   |      |   |   |   |   |                 |

value

|   |    |           |                 |
|---|----|-----------|-----------------|
|   | DA | O K Y O   |                 |
|   | DI |           |                 |
| 0 | 6T | 4 K U O 1 | require and put |
| 1 | 2A | 4 Y E O   | VAFLA           |
| 2 | 2T | 2 K U O A |                 |
|   | DC |           |                 |
|   | DO |           |                 |

require

|   |     |    |   |   |   |     |
|---|-----|----|---|---|---|-----|
|   | DA  |    | O | K | N | O   |
|   | DI  |    |   |   |   |     |
| 0 | 2A  | 12 | Z | E | O |     |
| 1 | 2LA | 0  |   | X | O | B   |
| 2 | OLA | 1  |   | X | O | B Z |
| 3 | 2T  | 8  |   | X | O |     |
|   | DC  |    |   |   |   |     |
|   | DO  |    |   |   |   |     |

put

|   | DA  |    | O | L | Z | O |
|---|-----|----|---|---|---|---|
|   | DI  |    |   |   |   |   |
| 0 | 2A  | 12 | Z | E | O |   |
| 1 | 3LA | 2  |   | X | O | B |
| 2 | OLA | 3  |   | X | O | B |
| 3 | 6A  | 12 |   | E | O |   |
| 4 | 2T  | 8  |   | X | O | E |
|   | DC  |    |   |   |   |   |
|   | DO  |    |   |   |   |   |

PCP(prepare complicated parameter)

|    | DA    | O     | L | E  | O |                         |
|----|-------|-------|---|----|---|-------------------------|
|    | DI    |       |   |    |   |                         |
| 0  | 2A    | 12    | Z | E  | O |                         |
| 1  | U 2LA | 2     | F | Z  | 1 | Z PAFLA                 |
| 2  | Y 2T  | 21    | L | E  | O | A no parameter          |
| 3  | 2B    | 26    | Z | E  | O |                         |
| 4  | 2S    | 32767 | X | O  | B |                         |
| 5  | OLS   | 21    | Y | E  | O | Z                       |
| 6  | N 2T  | 21    | L | E  | O | A no begin of parameter |
| 7  | 2LA   | 15    | F | Z  | O | Z                       |
| 8  | N 5A  | 12    | Z | E  | O | implicit jump over      |
| 9  | N 6T  | 0     | L | W  | O | 3 implicit subroutine   |
| 10 | 2A    | 1     |   |    | A |                         |
| 11 | OA    | 11    | Z | E  | O |                         |
| 12 | U 3LA | 31    |   |    | A | Z                       |
| 13 | Y 6A  | 11    |   | E  | O | BN                      |
| 14 | N 7Y  | 1053  | C | O  |   |                         |
| 15 | 2B    | 26    | Z | E  | O |                         |
| 16 | 2S    | 13    | U | Z  | O |                         |
| 17 | 2P    | 15    |   | SS |   |                         |
| 18 | OLS   | 12    |   | Z  | O |                         |
| 19 | OLS   | 16    | F | Z  | O | P store PORD-tail in    |
| 20 | 6S    | 32761 | X | O  | B | translator list         |
| 21 | 2A    | 0     | Z | E  | 1 |                         |
| 22 | 2T    | 12    |   | X  | O |                         |
|    | DC    |       |   |    |   |                         |
|    | DO    |       |   |    |   |                         |

NNP(name and number processor)

|    | DA    | O    | L | F   | O   |                         |
|----|-------|------|---|-----|-----|-------------------------|
|    | DI    |      |   |     |     |                         |
| 0  | 6A    | 10   | Z | E   | 0   | priority number         |
| 1  | 2A    | 12   |   | E   | 0   | NFLA                    |
| 2  | U 2LA | 2    |   |     |     | Name processor          |
| 3  | N 2T  | 0    | L | H   | 0 A |                         |
| 4  | U 2LA | 1    |   |     |     | KFLA                    |
| 5  | N 2T  | 0    | L | K   | 0 A | number processor        |
| 6  | 2A    | 12   | Z | E   | 0   |                         |
| 7  | 2LA   | 2051 |   |     |     | A                       |
| 8  | OLA   | 2048 |   |     |     | A Z                     |
| 9  | Y 2A  | 31   |   | E   | 0   | LEFLA                   |
| 10 | Y 4A  | 12   |   | E   | 0   | T'                      |
| 11 | 2B    | 1    |   |     |     | T                       |
| 12 | 6B    | 13   |   | E   | 1   | from name processor or  |
| 13 | 2B    | 1    |   |     |     | number processor        |
| 14 | 5B    | 26   |   | E   | 0   | from backward scanner   |
| 15 | 2B    | 26   |   | E   | 0   |                         |
| 16 | 2S    | 0    | X | 0   | B P |                         |
| 17 | 2A    | 0    |   |     |     | A                       |
| 18 | Y 2P  | 5    |   | AS  |     |                         |
| 19 | N 6S  | 12   |   | E   | 0   |                         |
| 20 | N OLS | 0    |   | D15 |     |                         |
| 21 | N 2T  | 13   | X | 0   | E   | exit backward scanner V |
| 22 | 4P    |      |   | AB  |     |                         |
| 23 | 4P    |      |   | SA  |     |                         |
| 24 | 3P    | 5    |   | SS  | Z   |                         |
| 25 | 2T    | 0    | L | L   | O B | distributive jump       |
|    | DC    |      |   |     |     |                         |
|    | DO    |      |   |     |     |                         |

name processor

| DA | O     | L    | H | O |     |
|----|-------|------|---|---|-----|
| DI |       |      |   |   |     |
| 0  | 2A    | 0    | Z | E | 1   |
| 1  | U 2LA | 17   | F | Z | 0 Z |
| 2  | 2S    | 1    | Z | E | 1   |
| 3  | Y 2T  | 6    | L | H | 0 A |
| 4  | U 2LS | 0    | F | Z | 0 Z |
| 5  | Y 7Y  | 1045 | C | O |     |
| 6  | U 2LA | 9    | F | Z | 0 Z |
| 7  | N 7Y  | 1046 | C | O |     |
| 8  | U 2LA | 18   | F | Z | 0 Z |
| 9  | N 2T  | 9    | R | E | 0 A |
| 10 | U 2LA | 2    | F | Z | 1 Z |
| 11 | N 2T  | 0    | R | E | 0 A |
| 12 | U 2LA | 5    | F | Z | 0 Z |
| 13 | N 2T  | 0    | L | Y | 0 A |
| 14 | U 2LA | 15   | F | Z | 0 Z |
| 15 | N 2T  | 0    | L | U | 0 A |
| 16 | 6T    | 0    | E | O | 4   |
| 17 | 2LA   | 17   | F | Z | 0 Z |
| 18 | 2A    | 8    | Z | E | 0   |
| 19 | Y 2T  | 24   | L | H | 0 A |
| 20 | OLA   | 92   |   |   | A Z |
| 21 | 2S    | 42   |   |   | A   |
| 22 | N 1S  | 1    |   |   | A   |
| 23 | 2T    | 1    | L | H | 1 A |
| 24 | 2S    | 27   |   |   | A   |
| 25 | OLA   | 92   |   |   | A Z |
| 26 | N OS  | 4    |   |   | A   |
| 27 | 2A    | 0    | Z | E | 1   |
| 28 | 2LA   | 19   | F | Z | 0 Z |
| 29 | Y OS  | 1    |   |   | A   |
| 30 | 2A    | 1    | Z | E | 1   |
| 31 | 2LA   | 9    | F | Z | 0 Z |
| DC |       |      |   |   |     |
| DO |       |      |   |   |     |

name code I

name code II

switch identifier

label identifier

array identifier

procedure identifier  
PCP

delimiter  
non-formal

:= ?

TFA

TFR

TRA

TRR

TIA or TIR

|    | DA |    | O  | L | H  | 1 |                    |
|----|----|----|----|---|----|---|--------------------|
|    | DI |    |    |   |    |   |                    |
| 0  | N  | OS | 2  |   |    | A | P own version      |
| 1  |    | 2B | 0  |   |    | A |                    |
| 2  |    | 6T | 0  | U | E  | 0 | 2 FOT( take order) |
| 3  |    | 2B | 1  | Z | E  | 1 |                    |
| 4  |    | 4P |    |   | BS |   |                    |
| 5  |    | 2B | 1  |   |    | A |                    |
| 6  |    | 6T | 0  | U | E  | 0 | 2 FOT(DA)          |
| 7  | N  | 2B | 0  |   |    | A |                    |
| 8  | N  | 2S | 6  |   |    | A |                    |
| 9  | N  | 6T | 0  | U | E  | 0 | 2 FOT(TNR)         |
| 10 |    | 2T | 11 | L | F  | 0 | A                  |
|    | DC |    |    |   |    |   |                    |
|    | DO |    |    |   |    |   |                    |

number processor

|    | DA    |    | O | L | K | O |   |
|----|-------|----|---|---|---|---|---|
|    | DI    |    |   |   |   |   |   |
| 0  | 6T    |    | 0 | L | E | 0 | 4 |
| 1  | 2A    | 12 | Z | E | 0 |   |   |
| 2  | U 2LA | 4  |   |   |   | A | Z |
| 3  | 2S    | 25 |   |   |   | A |   |
| 4  | N 2S  | 26 |   |   |   | A |   |
| 5  | 2B    | 0  |   |   |   | A |   |
| 6  | 6T    | 0  | U | E | 0 | 2 |   |
| 7  | Y 2S  | 15 | Z | E | 0 |   |   |
| 8  | N 2S  | 16 | Z | E | 0 |   |   |
| 9  | 2B    | 8  |   |   |   | A |   |
| 10 | 6T    | 0  | U | E | 0 | 2 |   |
| 11 | N 2T  | 11 | L | F | 0 | A |   |
| 12 | 2A    | 8  | Z | E | 1 |   | Z |
| 13 | N 2S  | 16 | Z | E | 0 |   |   |
| 14 | N 6T  | 0  | U | E | 0 | 2 |   |
| 15 | 2S    | 17 | Z | E | 0 |   |   |
| 16 | 2B    | 7  |   |   |   | A |   |
| 17 | 6T    | 0  | U | E | 0 | 2 |   |
| 18 | 2T    | 11 | L | F | 0 | A |   |
|    | DC    |    |   |   |   |   |   |
|    | DO    |    |   |   |   |   |   |

|                                  |
|----------------------------------|
| PCP                              |
| TCR                              |
| TCI                              |
| FOT(take constant)               |
| FOT(integer or head of mantissa) |
| FOT(tail of mantissa)            |
| FOT(exponent)                    |
| NNP                              |

backward scanner I  
distribution list

|    | DA | O  | L | L | O                           |  |
|----|----|----|---|---|-----------------------------|--|
|    | DI |    |   |   |                             |  |
| 0  | OA | 0  | T | 0 | macro-order                 |  |
| 1  | OA | 4  | R | 0 | DA                          |  |
| 2  | OA | 4  | R | 0 | NAP(number in address pile) |  |
| 3  | OA | 4  | R | 0 | PDA                         |  |
| 4  | OA | 4  | R | 0 | PPA                         |  |
| 5  | OA | 4  | R | 0 | LN                          |  |
| 6  | OA | 4  | R | 0 | N                           |  |
| 7  | OA | 4  | R | 0 | head of PORD                |  |
| 8  | OA | 5  | R | 1 | bracket                     |  |
| 9  | OA | 0  | R | 0 | NLSC(name list counter)     |  |
| 10 | OA | 21 | R | 0 | APC(address pile counter)   |  |
| 11 | OA | 4  | R | 0 | PRA( for address pile)      |  |
| 12 | OA | 2  | R | 0 | PORD-tail = PRA             |  |
| 13 | OA | 8  | R | 0 | PORD-tail = DA              |  |
| 14 | OA | 6  | R | 0 | PORD-tail = DA + N          |  |
| 15 | OA | 0  | S | 0 | PORD-tail = NAP+ N          |  |
| 16 | OA | 0  | R | 1 | check number                |  |
| 17 | OA | 8  | R | 1 | BN                          |  |
| 18 | OA | 10 | R | 1 | qq= LN non-own var.& arr.   |  |
| 19 | OA | 12 | R | 1 | rr= LN own variables        |  |
| 20 | OA | 14 | R | 1 | ss= LN own arrays           |  |
| 21 | OA | 16 | R | 1 | ppp=LN in prestack list     |  |
|    | DC |    |   |   |                             |  |
|    | DO |    |   |   |                             |  |

backward scanner II

|    | DA    | O L R O    |                       |
|----|-------|------------|-----------------------|
| 0  | DI 6S | 19 Z E O   | NLSC                  |
| 1  | 2T    | 13 L F O A |                       |
| 2  | 6T    | 0 U E O 2  | FOT(D12) S unchanged  |
| 3  | 2B    | 11         | A                     |
| 4  | 6T    | 0 U E O 2  | FOT(PRA)              |
| 5  | 2T    | 13 L F O A |                       |
| 6  | 3P    | 15 SS      | DA + N                |
| 7  | 6S    | 14 Z E 1   |                       |
| 8  | 3P    | 15 AS      | DA                    |
| 9  | 3P    | 16 SS      |                       |
| 10 | 2LA   | 31         | A                     |
| 11 | 6S    | 2 E 1      |                       |
| 12 | 4P    | AS         |                       |
| 13 | 2B    | 6          | A                     |
| 14 | 6T    | 0 U E O 2  | FOT(BN)               |
| 15 | 2B    | 1          | A                     |
| 16 | 2S    | 2 Z E 1    |                       |
| 17 | Y 6T  | 0 U E O 2  | FOT(LN)               |
| 18 | Y 2S  | 14 Z E 1   |                       |
| 19 | Y 2B  | 6          | A                     |
| 20 | 2T    | 4 L R O A  |                       |
| 21 | 6S    | 14 Z E 1   | punching address pile |
| 22 | 2B    | 12 E 1     |                       |
| 23 | U 1B  | 14 E 1     | P                     |
| 24 | Y 1B  | 1          | A                     |
| 25 | Y OT  | 0          | A                     |
| 26 | Y OB  | 27 E O     | BAP                   |
| 27 | Y 2S  | 0 X O B    |                       |
| 28 | Y 2B  | 11         | A                     |
| 29 | Y 6T  | 0 U E O 2  | FOT(PRA)              |
| 30 | Y 2T  | 22 L R O A |                       |
| 31 | 2T    | 13 F O A   |                       |
|    | DC    |            |                       |
|    | DO    |            |                       |

DA O L R 1  
 DI  
 0 U 2LS 15 A Z  
 1 Y 2T 18 L R 1 A  
 2 U 2LS 272 A Z  
 3 Y 7Y 1040 C O  
 4 2T 18 L R 1 A  
 5 2B 1 A  
 6 4B 26 Z E O  
 7 2T 13 X O E  
 8 6S 11 E O  
 9 2T 13 L F O A  
 10 6S 21 Z E 1  
 11 2T 13 L F O A  
 12 6S 22 Z E 1  
 13 2T 13 L F O A  
 14 6S 23 Z E 1  
 15 2T 13 L F O A  
 16 6S 24 Z E 1  
 17 2T 13 L F O A  
 18 2B 26 Z E O  
 19 2A 32767 X O B  
 20 U OLA 31 L R 1 Z  
 21 Y OB 1 A  
 22 Y 6B 26 Z E O  
 23 Y 6A 32767 X O B  
 24 Y 2A 32765 X O B  
 25 Y 6A 32766 X O B  
 26 Y 5P SS  
 27 Y 2LS 127 A  
 28 Y OS 2 Y E 5  
 29 Y 6S 32765 X O B  
 30 2T 13 L F O A  
 DU  
 31 +11101000000000101011  
 DC  
 DO

exit backward scanner

check number transformed  
 into metaparameter N  
 of FTAA

FTAA

backward scanner III

|   | DA  | O L S O    |          |
|---|-----|------------|----------|
|   | DI  |            |          |
| 0 | 6A  | 14 Z E 1   |          |
| 1 | 2LS | 32767      | A        |
| 2 | 2B  | 2          | A        |
| 3 | 6T  | 0 U E 0 2  | FOT(NAP) |
| 4 | 2S  | 14 Z E 1   | P        |
| 5 | 3P  | 20 SS      |          |
| 6 | 2T  | 19 L R O A |          |
|   | DC  |            |          |
|   | DO  |            |          |

backward scanner IV  
produce and check macro-order

|    | DA    | O L T O  |     |                          |
|----|-------|----------|-----|--------------------------|
|    | DI    |          |     |                          |
| 0  | U 2A  | 13 Z E 1 | Z   | no priority test ?       |
| 1  | N 3P  | 20 AA    |     |                          |
| 2  | N 1A  | 10 Z E 0 | P   | rank - priority at least |
| 3  | N 4P  | AA       | Z   | zero?                    |
| 4  | N 2T  | 5 L R 1  | A   |                          |
| 5  | 6S    | 14 Z E 1 |     |                          |
| 6  | 2LS   | 127      | A   |                          |
| 7  | 6T    | 0 U E 0  | 2   | FOT(macro-order)         |
| 8  | 2S    | 14 Z E 1 |     |                          |
| 9  | U 2LS | 1024     | A Z | Boolean bit absent ?     |
| 10 | 2LS   | 127      | A   |                          |
| 11 | 2A    | 12 E 0   |     |                          |
| 12 | N 2T  | 16 L T 0 | A   |                          |
| 13 | U 1S  | 71       | A P |                          |
| 14 | U 1S  | 66       | A E |                          |
| 15 | Y 2T  | 19 T 0   | A   |                          |
| 16 | U 2LA | 24       | A Z | Boolean test             |
| 17 | N 7Y  | 1043 C 0 |     |                          |
| 18 | 2T    | 13 F 0   | A   |                          |
| 19 | U OLS | 1        | A Z | JU ?                     |
| 20 | N 2T  | 24 T 0   | A   |                          |
| 21 | U 2LA | 16       | A Z | designational test       |
| 22 | Y 7Y  | 1042 C 0 |     |                          |
| 23 | 2T    | 13 F 0   | A   |                          |
| 24 | U OLS | 72       | A Z | NEG ?                    |
| 25 | Y 2T  | 29 T 0   | A   |                          |
| 26 | U 1S  | 66       | A P |                          |
| 27 | U 1S  | 54       | A E |                          |
| 28 | Y 2T  | 13 F 0   | A   |                          |
| 29 | U 2LA | 8        | A Z | arithmetical test        |
| 30 | Y 7Y  | 1044 C 0 |     |                          |
| 31 | U 1S  | 66       | A P |                          |
|    | DC    |          |     |                          |
|    | DO    |          |     |                          |

DA O L T 1  
DI  
0 U 1S 60 A E  
1 N OLA 8 A ARFLA  
2 N 6A 12 Z E O  
3 2T 13 L F O A  
DC  
DO

implicit jump

|   | DA | O  | L | W | O |            |
|---|----|----|---|---|---|------------|
|   | DI |    |   |   |   |            |
| 0 | 2B | 0  |   |   | A |            |
| 1 | 2S | 0  |   |   | A |            |
| 2 | 6T | 0  | U | E | O | 2 FOT(IJU) |
| 3 | 2B | 12 |   |   | A |            |
| 4 | 6T | 0  |   | E | O | 2 FOT(D12) |
| 5 | 2T | 11 | X | O | E |            |
|   | DC |    |   |   |   |            |
|   | DO |    |   |   |   |            |

procedure identifiers

|    | DA    | O L U O    |  |                  |
|----|-------|------------|--|------------------|
|    | DI    |            |  |                  |
| 0  | 6T    | 0 L E O 4  |  | PCP              |
| 1  | 2S    | 8 Z E O    |  | delimiter        |
| 2  | U OLS | 92 A Z     |  | := ?             |
| 3  | Y 2T  | 11 L F O A |  | "(" ?            |
| 4  | U OLS | 98 A Z     |  |                  |
| 5  | Y 2T  | 10 L U O A |  |                  |
| 6  | 2S    | 1 Z E 1    |  | name code II     |
| 7  | 3P    | 16 SS      |  |                  |
| 8  | 2LS   | 15 A Z     |  |                  |
| 9  | N 7Y  | 1047 C O   |  |                  |
| 10 | 2A    | 12 Z E O   |  |                  |
| 11 | U 2LA | 31 Y E 4 Z |  | SFLA & PAFLA     |
| 12 | Y 2S  | 0 Z E 1    |  |                  |
| 13 | Y 2LS | 0 F Z O Z  |  |                  |
| 14 | Y 7Y  | 1089 C O   |  |                  |
| 15 | 2S    | 0 Z E 1    |  |                  |
| 16 | U 2LS | 2 F Z O Z  |  | no macro-order ? |
| 17 | Y 2T  | 30 L U O A |  |                  |
| 18 | U 2LA | 2 F Z O Z  |  | SFLA             |
| 19 | N 2LS | 0 F Z O Z  |  |                  |
| 20 | N 2S  | 7 A        |  |                  |
| 21 | N OLS | 20 F Z O   |  |                  |
| 22 | N 6T  | 0 Z W O O  |  | FTL(RR)          |
| 23 | 2S    | 1 Z E 1    |  |                  |
| 24 | 3P    | 10 SS      |  |                  |
| 25 | 2LS   | 31 A       |  |                  |
| 26 | OS    | 75 A       |  |                  |
| 27 | OLS   | 21 F Z O   |  |                  |
| 28 | 6T    | 0 Z W O O  |  | FTL(macro-order) |
| 29 | 2T    | 11 L F O A |  |                  |
| 30 | 2LA   | 2 F Z O Z  |  | SFLA             |
| 31 | N 2A  | 1 A        |  |                  |
|    | DC    |            |  |                  |
|    | DO    |            |  |                  |

|    | DA    | O  | L | U | 1  |                |
|----|-------|----|---|---|----|----------------|
|    | DI    |    |   |   |    |                |
| 0  | 6A    | 14 | Z | E | 1  |                |
| 1  | N 2S  | 7  |   |   |    | A              |
| 2  | N OLS | 20 | F | Z | 0  |                |
| 3  | N 6T  | 0  | Z | W | 0  | FTL(RR)        |
| 4  | 2A    | 0  | Z | E | 1  |                |
| 5  | U 2LA | 17 | F | Z | 0  | Z              |
| 6  | N 2S  | 6  |   |   |    | A              |
| 7  | N OLS | 20 | F | Z | 0  |                |
| 8  | N 6T  | 0  | Z | W | 0  | FTL(TNR)       |
| 9  | 2B    | 1  | Z | E | 1  |                |
| 10 | 4P    |    |   |   | BS |                |
| 11 | Y OLS | 2  | F | Z | 1  |                |
| 12 | N OLS | 15 | F | Z | 0  |                |
| 13 | N 2B  | 14 | Z | E | 1  |                |
| 14 | N 5B  | 26 |   | E | 0  |                |
| 15 | 6T    | 0  | W | 0 | 0  | FTL(NAP or DA) |
| 16 | 2S    | 22 | F | Z | 0  |                |
| 17 | 6T    | 0  | Z | W | 0  | FTL( N = 0 )   |
| 18 | 2S    | 48 |   |   |    | PC             |
| 19 | N 1S  | 2  |   |   |    | FPCR           |
| 20 | N OS  | 14 |   | E | 1  | FPCP           |
| 21 | OLS   | 20 | F | Z | 0  |                |
| 22 | 2T    | 28 | L | U | 0  | A              |
|    | DC    |    |   |   |    |                |
|    | DO    |    |   |   |    |                |

array identifiers

|    | DA    | O     | L  | Y | O |                               |
|----|-------|-------|----|---|---|-------------------------------|
|    | DI    |       |    |   |   |                               |
| 0  | 6T    | 0     | E  | 0 | 4 | PCP                           |
| 1  | 2B    | 26    | Z  | E | 0 |                               |
| 2  | 2S    | 32767 | X  | 0 | B |                               |
| 3  | 1S    | 21    | Y  | E | 0 | Z                             |
| 4  | Y 2S  | 18    | F  | Z | 0 | B(actpar on translator list ? |
| 5  | Y 4S  | 12    | Z  | E | 0 | PIFLA                         |
| 6  | 2S    | 14    | Y  | E | 1 | ITAR                          |
| 7  | 6T    | 0     | Z  | W | 0 | FTL(ITAR)                     |
| 8  | 2S    | 12    | E  | 0 |   |                               |
| 9  | 6T    | 0     | W  | 0 | 0 | FTL(Flag word)                |
| 10 | 2A    | 1     | E  | 1 |   |                               |
| 11 | 4P    |       | AB |   |   |                               |
| 12 | 4P    |       | BS |   |   |                               |
| 13 | OLS   | 15    | F  | Z | 0 |                               |
| 14 | 6T    | 0     | Z  | W | 0 | FTL(DA)                       |
| 15 | U 2LA | 9     | F  | Z | 0 | Z                             |
| 16 | Y 2S  | 35    |    |   | A | TAA                           |
| 17 | N 2S  | 36    |    |   | A | OTAA                          |
| 18 | 2LA   | 2     | Z  | 0 |   | Z                             |
| 19 | N 2S  | 37    |    |   | A | VTAA                          |
| 20 | Y 3A  | 0     | Z  | E | 1 |                               |
| 21 | Y 2LA | 17    | F  | Z | 0 | Z                             |
| 22 | Y 2S  | 43    |    |   | A | FTAA                          |
| 23 | OLS   | 20    | Z  | 0 |   |                               |
| 24 | 6T    | 0     | Z  | W | 0 | FTL(macro-order)              |
| 25 | 2S    | 1     | E  | 1 |   |                               |
| 26 | 3P    | 16    | SS |   |   |                               |
| 27 | 2LS   | 287   |    |   | A | isolate dimensions            |
| 28 | OLS   | 128   |    |   | A | marker array check            |
| 29 | OLS   | 2     | F  | Z | 0 |                               |
| 30 | 6T    | 0     | Z  | W | 0 | FTL(check number)             |
| 31 | 2T    | 13    | X  | 0 | E |                               |
|    | DC    |       |    |   |   |                               |
|    | DO    |       |    |   |   |                               |

fixed contents of name list

| DA | O L N O   |           | NAP |
|----|-----------|-----------|-----|
| DN |           |           |     |
| 0  | +59086335 | abs       | 0   |
| 1  | +4265984  | name code | II  |
| 2  | +52756483 | name code | I   |
| 3  | +48768231 | sign      | 1   |
| 4  | +4267009  |           |     |
| 5  | +52690947 |           |     |
| 6  | +61715687 | sqrt      | 2   |
| 7  | +4274178  |           |     |
| 8  | +52756483 |           |     |
| 9  | +48839167 | sin       | 3   |
| 10 | +4271107  |           |     |
| 11 | +52756483 |           |     |
| 12 | +59513343 | cos       | 4   |
| 13 | +4272132  |           |     |
| 14 | +52756483 |           |     |
| 15 | +48955391 | ln        | 5   |
| 16 | +4273157  |           |     |
| 17 | +52756483 |           |     |
| 18 | +53517823 | exp       | 6   |
| 19 | +4270086  |           |     |
| 20 | +52756483 |           |     |
| 21 | +38710903 | entier    | 7   |
| 22 | +57114623 |           |     |
| 23 | +4268039  |           |     |
| 24 | +52690948 |           |     |
| 25 | +27598047 | read      | 8   |
| 26 | +4203528  |           |     |
| 27 | +52690947 |           |     |
| 28 | +48838351 |           |     |
| 29 | +62914559 | print     | 9   |
| 30 | +65545    |           |     |
| 31 | +2097156  |           |     |
| DC |           |           |     |
| DO |           |           |     |

|    |           |           |     |
|----|-----------|-----------|-----|
| DA | O L N 1   |           |     |
| DN |           |           | NAP |
| 0  | -53284352 | TAB       | 10  |
| 1  | +1034     |           |     |
| 2  | +35651587 |           |     |
| 3  | -19668584 | NLCR      | 11  |
| 4  | +2059     |           |     |
| 5  | +35651587 |           |     |
| 6  | -27995160 | XEEN      | 12  |
| 7  | +4264972  |           |     |
| 8  | +52690947 |           |     |
| 9  | -51189312 | SPACE     | 13  |
| 10 | -46137344 |           |     |
| 11 | +65549    |           |     |
| 12 | +2097156  |           |     |
| 13 | +53230311 | stop      | 14  |
| 14 | +5010     |           |     |
| 15 | +35651587 |           |     |
| 16 | -29560832 | SUM       | 15  |
| 17 | +4456463  |           |     |
| 18 | +19136515 |           |     |
| 19 | -27857496 | PRINTTEXT | 16  |
| 20 | -7015992  |           |     |
| 21 | -14680064 |           |     |
| 22 | +65552    |           |     |
| 23 | +2097157  |           |     |
| 24 | -27986608 | EVEN      | 17  |
| 25 | +4259857  |           |     |
| 26 | +19136515 |           |     |
| 27 | +61224535 | arctan    | 18- |
| 28 | +48594943 |           |     |
| 29 | +4259858  |           |     |
| 30 | +19202052 |           |     |
| 31 | -15081128 | FLOT      | 19  |
| DC |           |           |     |
| DO |           |           |     |

| DA | O L N 2   |          | NAP |
|----|-----------|----------|-----|
| DN |           |          |     |
| 0  | +131091   |          |     |
| 1  | +2097155  |          |     |
| 2  | -14787752 | FIXT     | 20  |
| 3  | +196628   |          |     |
| 4  | +2097155  |          |     |
| 5  | +28021903 | hand     | 21  |
| 6  | +4259840  |          |     |
| 7  | +19202051 |          |     |
| 8  | -46369880 | PUTEXT   | 22  |
| 9  | -14778368 |          |     |
| 10 | +65558    |          |     |
| 11 | +2097156  |          |     |
| 12 | -23333976 | PUSPACE  | 23  |
| 13 | -46937088 |          |     |
| 14 | +65559    |          |     |
| 15 | +2097156  |          |     |
| 16 | -31886424 | PUNLCR   | 24  |
| 17 | -19660800 |          |     |
| 18 | +24       |          |     |
| 19 | +2097156  |          |     |
| 20 | -25594952 | RUNOUT   | 25  |
| 21 | -14876672 |          |     |
| 22 | +25       |          |     |
| 23 | +2097156  |          |     |
| 24 | -46511160 | TAPEND   | 26  |
| 25 | -48660480 |          |     |
| 26 | +26       |          |     |
| 27 | +2097156  |          |     |
| 28 | -23465536 | STOPCODE | 27  |
| 29 | -46897344 |          |     |
| 30 | +27       |          |     |
| 31 | +2097156  |          |     |
| DC |           |          |     |
| DO |           |          |     |

|    |                              |     |           |
|----|------------------------------|-----|-----------|
| DA | O L N 3                      |     |           |
| DU |                              | NAP |           |
| 0  | +110100110011110000101010111 | 28  | FLOP      |
| 1  | +110000000000011100          |     |           |
| 2  | +100000000000000000011       |     |           |
| 3  | +110100111100101101101010111 | 29  | FIXP      |
| 4  | +110000000000011101          |     |           |
| 5  | +100000000000000000011       |     |           |
| 6  | +110110110100110010101101111 | 30  | INPROD    |
| 7  | +101000110011111111111111111 |     |           |
| 8  | +10001010000000000011110     |     |           |
| 9  | +100100100000000000000100    |     |           |
| 10 | +101000110010100101110110111 | 31  | RANDOM    |
| 11 | +110001110011111111111111111 |     |           |
| 12 | +10000000000000000011111     |     |           |
| 13 | +100100101000000000000100    |     |           |
| 14 | +110110111000101001110111111 | 32  | SETRANDOM |
| 15 | +110011101000110010100101111 |     |           |
| 16 | +110001111111111111111111111 |     |           |
| 17 | +10000000000100000           |     |           |
| 18 | +1000000000000000000101      |     |           |
| 19 | +101010110111100110100101111 | 33  | ABSFIXT   |
| 20 | +111000111100101101111111111 |     |           |
| 21 | +110000000000100001          |     |           |
| 22 | +1000000000000000000100      |     |           |
| 23 | +101010110111100110100101111 | 34  | ABSFIXP   |
| 24 | +110100111100101101111111111 |     |           |
| 25 | +110000000000100010          |     |           |
| 26 | +1000000000000000000100      |     |           |
| 27 | +111000100111100101101010111 | 35  | FACTOR    |
| 28 | +110110110011111111111111111 |     |           |
| 29 | +10000010000000000100011     |     |           |
| 30 | +100100100000000000000100    |     |           |
| 31 | +100101110001101001110110111 | 36  | REMAINDER |
| DC |                              |     |           |
| DO |                              |     |           |

| DA | O L N 4                      | NAP          |
|----|------------------------------|--------------|
| DU |                              |              |
| 0  | +101001101000110010101101111 |              |
| 1  | +1101101111111111111111111   |              |
| 2  | +10000100000000000100100     |              |
| 3  | +100100100000000000000101    |              |
| 4  | +1010001001111010111111111   | 37 GCD       |
| 5  | +10000100000000000100101     |              |
| 6  | +1001001000000000000000011   |              |
| 7  | +1101001010001110011011111   | 38 readn     |
| 8  | +1011111111111111111111111   |              |
| 9  | +100000000000000100110       |              |
| 10 | +10000000000000000000100     |              |
| 11 | +100110000111111001110100111 | 39 PU7BIT    |
| 12 | +1110001011011111111111111   |              |
| 13 | +10000000000100111           |              |
| 14 | +10000000000000000000100     |              |
| 15 | +100110000111101001110110111 | 40 RE7BIT    |
| 16 | +1110001011011111111111111   |              |
| 17 | +10000000000000000101000     |              |
| 18 | +100100100000000000000100    |              |
| 19 | +10111010010011011011001111  | 41 printn    |
| 20 | +1011101110111111111111111   |              |
| 21 | +100000000000000101001       | name code II |
| 22 | +1000000000000000000100      | name code I  |
| DC |                              |              |
| DO |                              |              |

fixed contents of address pile

|    | DA<br>DI | O R Z O |           | paragraph<br>letters |
|----|----------|---------|-----------|----------------------|
| 0  | OA       | 1 E S 2 | abs       | LZ                   |
| 1  | OA       | 2 S 2   | sign      | LE                   |
| 2  | OA       | 3 S 2   | sqrt      | LF                   |
| 3  | OA       | 4 S 2   | sin       | LH                   |
| 4  | OA       | 5 S 2   | cos       | LK                   |
| 5  | OA       | 6 S 2   | ln        | LL                   |
| 6  | OA       | 7 S 2   | exp       | LR                   |
| 7  | OA       | 8 S 2   | entier    | LS                   |
| 8  | OA       | 9 S 2   | read      | LT                   |
| 9  | OA       | 10 S 2  | print     | LW                   |
| 10 | OA       | 11 S 2  | TAB       | LU                   |
| 11 | OA       | 12 S 2  | NLCR      | LY                   |
| 12 | OA       | 13 S 2  | XEEN      | LN                   |
| 13 | OA       | 14 S 2  | SPACE     | RZ                   |
| 14 | OA       | 18 S 2  | stop      | RK                   |
| 15 | OA       | 21 S 2  | SUM       | RS                   |
| 16 | OA       | 20 S 2  | PRINTTEXT | RR                   |
| 17 | OA       | 22 S 2  | EVEN      | RT                   |
| 18 | OA       | 19 S 2  | arctan    | RL                   |
| 19 | OA       | 16 S 2  | FLOT      | RF                   |
| 20 | OA       | 15 S 2  | FIXT      | RE                   |
| 21 | OA       | 17 S 2  | hand      | RH                   |
| 22 | OA       | 23 S 2  | PUTEXT    | RW                   |
| 23 | OA       | 24 S 2  | PUSPACE   | RU                   |
| 24 | OA       | 25 S 2  | PUNLCR    | RY                   |
| 25 | OA       | 26 S 2  | RUNOUT    | RN                   |
| 26 | OA       | 27 S 2  | TAPEND    | SZ                   |
| 27 | OA       | 28 S 2  | STOPCODE  | SE                   |
| 28 | OA       | 29 S 2  | FLOP      | SF                   |
| 29 | OA       | 30 S 2  | FIXP      | SH                   |
| 30 | OA       | 31 S 2  | INPROD    | SK                   |
| 31 | OA       | 0 S 3   | RANDOM    | SL                   |
|    | DC       |         |           |                      |
|    | DO       |         |           |                      |

|   | DA |    | O | R | Z | 1 |           | paragraph |
|---|----|----|---|---|---|---|-----------|-----------|
|   | DI |    |   |   |   |   |           | letters   |
| 0 | OA | 1  | E | S | 3 |   | SETRANDOM | SR        |
| 1 | OA | 2  |   | S | 3 |   | ABSFIXT   | SS        |
| 2 | OA | 3  |   | S | 3 |   | ABSFIXP   | ST        |
| 3 | OA | 4  |   | S | 3 |   | FACTOR    | SW        |
| 4 | OA | 5  |   | S | 3 |   | REMAINDER | SU        |
| 5 | OA | 6  |   | S | 3 |   | GCD       | SY        |
| 6 | OA | 7  |   | S | 3 |   | readn     | SN        |
| 7 | OA | 8  |   | S | 3 |   | PU7BIT    | TZ        |
| 8 | OA | 9  |   | S | 3 |   | RE7BIT    | TE        |
| 9 | OA | 10 |   | S | 3 |   | printn    | TF        |
|   | DC |    |   |   |   |   |           |           |
|   | DO |    |   |   |   |   |           |           |

labels and switches

|    | DA    | O R E O    |   |                      |
|----|-------|------------|---|----------------------|
| 0  | DI 2S | 39         | A | TAL                  |
| 1  | 6T    | 20 R E O O |   |                      |
| 2  | 2B    | 0          | A |                      |
| 3  | 6T    | 0 U E O 2  |   | FOT(TAL or TFL)      |
| 4  | 2B    | 1 Z E 1    |   |                      |
| 5  | 4P    | BS         |   |                      |
| 6  | 2B    | 1          | A |                      |
| 7  | 6T    | 0 U E O 2  |   | FOT(DA)              |
| 8  | 2T    | 11 L F O A |   |                      |
| 9  | 6T    | 0 L E O 4  |   | PCP                  |
| 10 | 6T    | 0 W L O 4  |   | PSE                  |
| 11 | 2B    | 1 Z E 1    |   |                      |
| 12 | 4P    | BS         |   |                      |
| 13 | OLS   | 15 F Z O   |   |                      |
| 14 | 6T    | 0 Z W O O  |   | FTL(DA)              |
| 15 | 2S    | 40         | A |                      |
| 16 | 6T    | 20 R E O O |   |                      |
| 17 | OS    | 19 F Z O   |   |                      |
| 18 | 6T    | 0 Z W O O  |   | FTL(SWIND or FSWIND) |
| 19 | 2T    | 11 L F O A |   |                      |
| 20 | 2A    | 0 Z E 1    |   |                      |
| 21 | 2LA   | 17 F Z O   | Z |                      |
| 22 | N OS  | 5          | A |                      |
| 23 | 2T    | 8 X O      | E |                      |
|    | DC    |            |   |                      |
|    | DO    |            |   |                      |

conditional expressions

|    | DA   |       | O R F O |
|----|------|-------|---------|
|    | DI   |       |         |
| 0  | 2B   | 26    | Z E O   |
| 1  | 2S   | 32767 | X O B   |
| 2  | 1S   | 24    | F Z O Z |
| 3  | N 2T | 14    | X O E   |
| 4  | 6T   | 19    | R F O 4 |
| 5  | 2S   | 12    | Z E O   |
| 6  | 6S   | 31    | E O     |
| 7  | 6T   | 0     | R W O 5 |
| 8  | 2S   | 12    | Z E O   |
| 9  | OLS  | 31    | E O     |
| 10 | 2LS  | 24    | A Z     |
| 11 | N 7Y | 1050  | C O     |
| 12 | 2T   | 0     | R F O A |
| 13 | 2S   | 13    | U Z O   |
| 14 | 2P   | 15    | SS      |
| 15 | OLS  | 12    | Z O     |
| 16 | 2B   | 11    | A       |
| 17 | 6T   | 0     | U E O 2 |
| 18 | 2T   | 11    | X O E   |
| 19 | 2S   | 8     | Z E O   |
| 20 | U 1S | 75    | A P     |
| 21 | U 1S | 70    | A E     |
| 22 | Y 2T | 26    | R F O A |
| 23 | 2S   | 32765 | X O B   |
| 24 | 2LS  | 24    | A Z     |
| 25 | Y 2T | 14    | X O E   |
| 26 | 6T   | 13    | R F O 3 |
| 27 | 2T   | 12    | X O E   |
|    | DC   |       |         |
|    | DO   |       |         |

BelseE on translator list ?

T to the right of else

backward scanner V

T to the left of else

T's compatible ?

FOT(PRA)

relational ?

T to the left Boolean ?

conditional expr.unfinished

for statements

|    |      |             |                        |
|----|------|-------------|------------------------|
|    | DA   | O R H O     |                        |
|    | DI   |             |                        |
| 0  | 2A   | 0           | A                      |
| 1  | 6A   | 10 Z E 0    | priority number        |
| 2  | 6T   | 11 L F 0 5  | backward scanner       |
| 3  | 2B   | 26 Z E 0    |                        |
| 4  | 2S   | 32767 X 0 B |                        |
| 5  | 1S   | 25 F Z 0    | Bdo on translator list |
| 6  | N 2T | 14 X 0      |                        |
| 7  | 6T   | 0 L W 0 3   | implicit jump          |
| 8  | 2B   | 26 Z E 0    |                        |
| 9  | 2S   | 13 U Z 0    |                        |
| 10 | 2P   | 15 SS       |                        |
| 11 | OLS  | 12 Z 0      | this moment's PRA      |
| 12 | OLS  | 26 F Z 0    |                        |
| 13 | 6S   | 32764 X 0 B |                        |
| 14 | 6T   | 0 R W 0 5   | backward scanner V     |
| 15 | 2T   | 3 H 0 A     |                        |
|    | DC   |             |                        |
|    | DO   |             |                        |

conditional statements

DA O R K O  
DI  
0 2B 26 Z E O  
1 2S 32767 X O B  
2 U 1S 27 F Z O Z  
3 N 1S 28 F Z O Z  
4 N 2T 14 X O E  
5 6T 13 R F O 3  
6 6T 0 R W O 5  
7 2T 0 R K O A  
DC  
DO

BelseS or  
BthenS on translator list ?

produce PRA  
backward scanner V

end of statement

|    | DA    | O  | R | L | O |                               |
|----|-------|----|---|---|---|-------------------------------|
| 0  | 2A    | 0  |   |   | A |                               |
| 1  | 6T    | 0  | L | F | 0 | 5 NNP                         |
| 2  | 6T    | 0  | R | F | 0 | 6 conditional expressions     |
| 3  | 2B    | 29 | F | Z | 0 | A                             |
| 4  | 6T    | 0  | K | N | 0 | 0 require                     |
| 5  | Y 6T  | 11 | R | L | 0 | 0 require statement processed |
| 6  | 6T    | 0  | R | H | 0 | 6 for statements              |
| 7  | 6T    | 0  | K | 0 | 6 | conditional statements        |
| 8  | 3S    | 15 | F | Z | 1 |                               |
| 9  | 6S    | 12 | Z | E | 0 | clear Flag word               |
| 10 | 2T    | 15 | X | 0 |   |                               |
| 11 | 2A    | 12 | Z | E | 0 |                               |
| 12 | U 2LA | 2  | F | Z | 0 | Z                             |
| 13 | N 2LA | 3  |   |   |   | A Z                           |
| 14 | N 3A  | 0  | Z | E | 1 |                               |
| 15 | N 2LA | 15 | F | Z | 0 | Z                             |
| 16 | 2T    | 8  | X | 0 |   |                               |
|    | DC    |    |   |   |   |                               |
|    | DO    |    |   |   |   |                               |

IPW(insert parameter word (= PORD))

|    |     |             |    |
|----|-----|-------------|----|
|    | DA  | O R R O     |    |
|    | DI  |             |    |
| 0  | 2B  | 26 Z E O    |    |
| 1  | 2S  | 5           | A  |
| 2  | 1B  | 1           | A  |
| 3  | 2A  | 2           | A  |
| 4  | 6T  | 0 S R O O   | TR |
| 5  | 0B  | 8           | A  |
| 6  | 6B  | 26 Z E O    |    |
| 7  | 2S  | 32766 X O B |    |
| 8  | 3A  | 1           | A  |
| 9  | 5A  | 32763 X O B |    |
| 10 | 0A  | 32766 X O B |    |
| 11 | 3LS | 15          | A  |
| 12 | 2LA | 15          | A  |
| 13 | 6S  | 32766 X O B |    |
| 14 | 4A  | 32766 X O B |    |
| 15 | 2T  | 9 X O E     |    |

DC

DO

decrease check number  
modulo 16

"(" of formal parameter part

|    | DA   | O R S O    |                      |
|----|------|------------|----------------------|
|    | DI   |            |                      |
| 0  | 2B   | 27 Y E 1 A |                      |
| 1  | 6T   | 0 K N 0 0  | require              |
| 2  | N 7Y | 1062 C 0   | SFLA & PROFLA        |
| 3  | 2S   | 1 Y E 0    |                      |
| 4  | 6S   | 12 Z E 0   |                      |
| 5  | 6T   | 0 S E 0 4  | INB I                |
| 6  | 3S   | 29 Y E 1   | PROFLA,COFLA & NIFLA |
| 7  | 6S   | 12 Z E 0   |                      |
| 8  | 6T   | 0 W 0 0    | FTL(Flag word)       |
| 9  | 2S   | 30 Y E 1   |                      |
| 10 | 6T   | 0 Z W 0 0  | FTL(Bforpar)         |
| 11 | 2T   | 0 Y 0 A    |                      |
|    | DC   |            |                      |
|    | DO   |            |                      |

"(" in expressions

|    | DA   | O    | R | T | O |                  |
|----|------|------|---|---|---|------------------|
|    | DI   |      |   |   |   |                  |
| 0  | 6T   | 0    | W | L | 0 | 4 PSE            |
| 1  | 6T   | 0    | L | E | 0 | 4 PCP            |
| 2  | 2S   | 12   | Z | E | 0 |                  |
| 3  | 6T   | 0    | Z | W | 0 | 0 FTL(Flag word) |
| 4  | 2S   | 19   | Y | E | 1 |                  |
| 5  | 6T   | 0    | Z | W | 0 | 0 FTL(B(E)       |
| 6  | 2B   | 20   | Y | E | 1 | A                |
| 7  | 6T   | 0    | K | N | 0 | 0 require        |
| 8  | N 7Y | 1062 | C | 0 |   |                  |
| 9  | 6T   | 0    | L | Z | 0 | 0 put            |
| 10 | 2T   | 0    | Z | Y | 0 | A                |
|    | DC   |      |   |   |   |                  |
|    | DO   |      |   |   |   |                  |

backward scanner V

|    | DA    | O     | R | W | O |   |
|----|-------|-------|---|---|---|---|
|    | DI    |       |   |   |   |   |
| 0  | 2A    | 0     |   |   | A |   |
| 1  | 6A    | 13    | Z | E | 1 |   |
| 2  | 2B    | 26    |   | E | 0 |   |
| 3  | 2S    | 32767 | X | 0 | B |   |
| 4  | 1B    | 1     |   |   | A |   |
| 5  | U 1S  | 23    | F | Z | 0 | Z |
| 6  | N 1S  | 0     |   | Z | 0 | Z |
| 7  | Y 1B  | 3     |   |   | A |   |
| 8  | 6B    | 26    | Z | E | 0 |   |
| 9  | Y 3S  | 2     | X | 0 | B |   |
| 10 | Y 2LS | 0     | F | Z | 0 | Z |
| 11 | N 2T  | 13    | L | F | 0 | A |
| 12 | 2B    | 0     | X | 0 | B |   |
| 13 | 2S    | 32766 | X | 0 | B |   |
| 14 | 2LS   | 2     | F | Z | 1 | Z |
| 15 | Y 7Y  | 1049  | C | 0 |   |   |
| 16 | 2T    | 13    | L | F | 0 | A |
|    | DC    |       |   |   |   |   |
|    | DO    |       |   |   |   |   |

Bproc or  
BbeginP on translator list ?

TLSC  
name code I  
function ?

require assignment to  
procedure identifier

punch tape feed

|   | DA |     | O | R | U | O |     |
|---|----|-----|---|---|---|---|-----|
|   | DI |     |   |   |   |   |     |
| 0 | 2B | 100 |   |   |   | A |     |
| 1 | 6B | 0   | X | 0 |   |   |     |
| 2 | 2S | 0   |   |   |   | A |     |
| 3 | 6T | 0   | U | K | 0 | 0 | AOB |
| 4 | 4T | 2   | R | U | 0 | 0 | P   |
| 5 | 2T | 9   | X | 0 |   | E |     |
|   | DC |     |   |   |   |   |     |
|   | DO |     |   |   |   |   |     |

autostarts

|    |      |      |    |    |   |     |
|----|------|------|----|----|---|-----|
|    | DA   | 23   |    | X  | 2 |     |
|    | DI   |      |    |    |   |     |
| 23 | 2T   |      | 0  | R  | Y | O A |
|    | DA   | 0    |    | Y  | O |     |
|    | DI   |      |    |    |   |     |
| 0  | 4P   |      |    | AA |   | P   |
| 1  | Y 5P |      |    | SS |   | P   |
| 2  | N 7Y | 1052 | C  | O  |   |     |
| 3  | U 1A | 14   |    |    | A | Z   |
| 4  | Y 3S | 12   |    |    | A |     |
| 5  | Y 7S | 26   | X  | O  |   |     |
| 6  | Y 2T | 1    | D  | 3  | A |     |
| 7  | U 1A | 9    |    |    | A | P   |
| 8  | Y 7Y | 1052 | C  | O  |   |     |
| 9  | 4P   |      | AB |    |   |     |
| 10 | 3S   | 0    |    |    | A |     |
| 11 | 6S   | 27   | X  | O  |   |     |
| 12 | 2T   | 13   | Y  | O  | B | P   |
| 13 | 3LS  | 0    | Z  | R  | O | C   |
| 14 | 3LS  | 0    | S  | Z  | O | C   |
| 15 | OB   | 1052 | C  | O  |   |     |
| 16 | OB   | 1052 | C  | O  |   |     |
| 17 | OB   | 1052 | C  | O  |   |     |
| 18 | OB   | 1052 | C  | O  |   |     |
| 19 | OB   | 1052 | C  | O  |   |     |
| 20 | 3LS  | 0    | R  | N  | O | C   |
| 21 | OB   | 1052 | C  | O  |   |     |
| 22 | OB   | 1052 | C  | O  |   |     |
|    | DC   |      |    |    |   |     |
|    | DO   |      |    |    |   |     |

G

distributive  
jump

type stop number and line number

|    |      |             |             |
|----|------|-------------|-------------|
|    | DA   | O R N O     |             |
|    | DI   |             |             |
| 0  | 6T   | 10 D28 0    | NLCR        |
| 1  | 2B   | 23 X 0      |             |
| 2  | 2S   | 32767 X 0 B |             |
| 3  | 3LS  | 13 N 0      |             |
| 4  | 1S   | 14 N 0 Z    |             |
| 5  | N 4P | BS          |             |
| 6  | Y 2S | 32767 X 0 B |             |
| 7  | 2LS  | 16383 A     |             |
| 8  | U 1S | 199 A P     |             |
| 9  | 6T   | 0 D22 0     | stop number |
|    | DT   |             |             |
| 10 | A G4 | NL4 XN      |             |
|    | DI   |             |             |
| 11 | Y 6T | 15 R N 0 1  | line number |
| 12 | 2T   | 19 D 7 A    |             |
| 13 | N OA | 16383 X 0   |             |
| 14 | 7Y   | 0 C 0       |             |
| 15 | 2S   | 2 Z E 0     |             |
| 16 | 6T   | 0 D22 0     |             |
|    | DT   |             |             |
| 17 | A G8 | -L8 XN      |             |
|    | DI   |             |             |
| 18 | 2T   | 9 X 0 E     |             |
|    | DC   |             |             |
|    | DO   |             |             |

start translation

|    | DA | O   | S | Z   | O |                           |
|----|----|-----|---|-----|---|---------------------------|
|    | DI |     |   |     |   |                           |
| 0  | 2B | 1   |   |     | A |                           |
| 1  | 7B | 11  | Z | E   | 0 | BN                        |
| 2  | 2A | 0   |   |     | A |                           |
| 3  | 6A | 0   | U | Z   | 0 | state of output routines  |
| 4  | 6A | 13  |   | Z   | 0 | (0=initial)               |
| 5  | 7A | 14  |   | Z   | 0 | controlling directive     |
| 6  | 2S | 27  |   | D16 |   |                           |
| 7  | OS | 169 |   |     | A |                           |
| 8  | 6S | 12  |   | Z   | 0 | PRA                       |
| 9  | 6A | 9   |   | Z   | 0 | bit number partial pentad |
| 10 | 6A | 8   |   | Z   | 0 | partial pentad            |
| 11 | 6A | 10  |   | Z   | 0 | parity pentad             |
| 12 | 6A | 11  |   | Z   | 0 | pentad counter            |
| 13 | 6A | 0   | Z | E   | 0 | initial state of RUND     |
| 14 | 6A | 2   |   | E   | 0 | LC                        |
| 15 | 6A | 12  |   | E   | 1 | APC                       |
| 16 | 6A | 31  |   | E   | 0 | T'                        |
| 17 | 6B | 24  |   | E   | 1 | ppp                       |
| 18 | 6B | 26  |   | E   | 1 | PPP                       |
| 19 | 6A | 21  |   | E   | 1 | qq                        |
| 20 | 6A | 22  |   | E   | 1 | rr                        |
| 21 | 6A | 23  |   | E   | 1 | ss                        |
| 22 | 2B | 0   | E | F   | 0 | A                         |
| 23 | 6B | 25  | Z | E   | 1 | PSLB                      |
| 24 | 2S | 14  | F | Z   | 1 |                           |
| 25 | 6S | 0   |   | X   | 0 | B                         |
| 26 | 3S | 15  | F | Z   | 1 |                           |
| 27 | 6S | 12  | Z | E   | 0 | Flag word                 |
| 28 | 2S | 0   | E | K   | 0 | A                         |
| 29 | 6S | 19  | Z | E   | 0 | NLSC                      |
| 30 | 6S | 22  |   | E   | 0 | INLSC                     |
| 31 | OB | 6   |   | E   | 1 | LPSL                      |
|    | DC |     |   |     |   |                           |
|    | DO |     |   |     |   |                           |

|    | DA   |    | O  | S | Z | 1 |                                       |
|----|------|----|----|---|---|---|---------------------------------------|
|    | DI   |    |    |   |   |   |                                       |
| 0  | 6B   | 26 | Z  | E | 0 |   | TLSC                                  |
| 1  | 6B   | 29 |    | E | 0 |   | ITLSC                                 |
| 2  | 2A   | 0  | E  | H | 0 | A |                                       |
| 3  | 6A   | 27 | Z  | E | 0 |   | BAP                                   |
| 4  | 2S   | 0  | E  | L | 0 | A |                                       |
| 5  | 2B   | 0  | R  | Z | 0 | A |                                       |
| 6  | 1A   | 0  |    | Z | 0 | A |                                       |
| 7  | 0B   | 1  | -E | L | 0 | A |                                       |
| 8  | 6T   | 0  | S  | R | 0 | 0 | TR(fixed contents of address<br>pile) |
| 9  | 2S   | 5  | Z  | E | 1 |   | sum check                             |
| 10 | 7S   | 5  |    | E | 1 |   |                                       |
| 11 | 2A   | 3  |    | D | 0 | P |                                       |
| 12 | Y 6T | 0  | R  | U | 0 | 1 | punch tape feed                       |
| 13 | 6T   | 1  | S  | E | 0 | 4 | INB I                                 |
| 14 | 2A   | 0  |    |   |   | A |                                       |
| 15 | 6A   | 9  | Z  | E | 2 |   | initial states                        |
| 16 | 6A   | 10 |    | E | 2 |   | of prescan program                    |
| 17 | 6A   | 11 |    | E | 2 |   |                                       |
| 18 | 6A   | 12 |    | E | 2 |   |                                       |
| 19 | 2T   | 0  |    | Y | 0 | A |                                       |
|    | DC   |    |    |   |   |   |                                       |
|    | DO   |    |    |   |   |   |                                       |

INB(introduction new block) I

|    | DA    | O     | S | E | O   |                |
|----|-------|-------|---|---|-----|----------------|
|    | DI    |       |   |   |     |                |
| 0  | 6T    | 0     | L | W | 0 3 | implicit jump  |
| 1  | 2S    | 12    | Z | E | 0   |                |
| 2  | U 2LS | 16384 |   |   | A Z | PROFLA         |
| 3  | N 3S  | 15    | F | Z | 1   |                |
| 4  | 6T    | 0     | Z | W | 0 0 | FTL(Flag word) |
| 5  | 2S    | 19    | Z | E | 0   |                |
| 6  | OLS   | 5     | F | Z | 1   |                |
| 7  | 6T    | 0     | Z | W | 0 0 | FTL(NLSC)      |
| 8  | 2S    | 12    | Z | E | 1   |                |
| 9  | OLS   | 6     | F | Z | 1   |                |
| 10 | 6T    | 0     | Z | W | 0 0 | FTL(APC)       |
| 11 | 2S    | 21    | Z | E | 1   |                |
| 12 | OLS   | 7     | F | Z | 1   |                |
| 13 | 6T    | 0     | Z | W | 0 0 | FTL(qq)        |
| 14 | 2S    | 22    | Z | E | 1   |                |
| 15 | OLS   | 8     | F | Z | 1   |                |
| 16 | 6T    | 0     | Z | W | 0 0 | FTL(rr)        |
| 17 | 2S    | 23    | Z | E | 1   |                |
| 18 | OLS   | 9     | F | Z | 1   |                |
| 19 | 6T    | 0     | Z | W | 0 0 | FTL(ss)        |
| 20 | 2S    | 11    | Z | E | 0   | P              |
| 21 | OLS   | 10    | F | Z | 1   |                |
| 22 | Y 6T  | 0     | Z | W | 0 0 | FTL(BN)        |
| 23 | 2S    | 1     |   |   | A   |                |
| 24 | 4S    | 11    | Z | E | 0   | Z              |
| 25 | 2B    | 10    |   |   | A   |                |
| 26 | Y 2S  | 0     | E | L | 0 A |                |
| 27 | N 2S  | 12    | Z | E | 1   |                |
| 28 | Y 6S  | 12    |   | E | 1   |                |
| 29 | 2A    | 11    |   | E | 0   |                |
| 30 | Y 7A  | 11    |   | E | 0   |                |
| 31 | 6T    | 0     | U | E | 0 2 | FOT(APC)       |
|    | DC    |       |   |   |     |                |
|    | DO    |       |   |   |     |                |

|    |       |         |    |   |     |                   |  |
|----|-------|---------|----|---|-----|-------------------|--|
|    | DA    | O S E 1 |    |   |     |                   |  |
|    | DI    |         |    |   |     |                   |  |
| 0  | Y 2S  | 31      | F  | Z | 0   |                   |  |
| 1  | Y 6T  | 0       | Z  | W | 0 0 | FTL(BbeginB)      |  |
| 2  | Y 2T  | 0       | S  | H | 0 A |                   |  |
| 3  | 2A    | 12      | Z  | E | 0   |                   |  |
| 4  | U 2LA | 3       | F  | Z | 1   | Z FOF LA          |  |
| 5  | N 2T  | 26      | S  | F | 0 A |                   |  |
| 6  | U 2LA | 16384   |    |   |     | A Z PROFLA        |  |
| 7  | Y 2T  | 8       | S  | F | 0 A |                   |  |
| 8  | 2S    | 24      | Z  | E | 1   |                   |  |
| 9  | OLS   | 11      | F  | Z | 1   |                   |  |
| 10 | 6T    | 0       | Z  | W | 0 0 | FTL(ppp)          |  |
| 11 | 2S    | 3       |    |   | A   |                   |  |
| 12 | 6T    | 0       | W  | 0 | 0   | FTL(RET)          |  |
| 13 | 2S    | 16      | E  | 1 |     |                   |  |
| 14 | 6T    | 0       | W  | 0 | 0   | FTL(NID)          |  |
| 15 | 2S    | 1       | E  | 1 |     |                   |  |
| 16 | 6T    | 0       | W  | 0 | 0   | name code II      |  |
| 17 | 4P    |         | SB |   |     |                   |  |
| 18 | 6T    | 4       | S  | F | 0 0 |                   |  |
| 19 | OB    | 27      | Z  | E | 0   |                   |  |
| 20 | 6S    | 0       | X  | 0 | B   | fill address pile |  |
| 21 | 2S    | 0       | Z  | E | 1   |                   |  |
| 22 | 6T    | 0       | W  | 0 | 0   | FTL(name code I)  |  |
| 23 | 2S    | 23      | F  | Z | 0   |                   |  |
| 24 | 6T    | 0       | Z  | W | 0 0 | FTL(Bproc)        |  |
| 25 | 2T    | 26      | S  | F | 0 A |                   |  |
|    | DC    |         |    |   |     |                   |  |
|    | DO    |         |    |   |     |                   |  |

simple block introduction

|    | DA   | O    | S  | F   | O   |                        |
|----|------|------|----|-----|-----|------------------------|
|    | DI   |      |    |     |     |                        |
| 0  | 6T   | 4    | S  | F   | 0 0 | FTL(this moment's PRA) |
| 1  | OLS  | 26   | F  | Z   | 0   |                        |
| 2  | 6T   | 0    | Z  | W   | 0 0 |                        |
| 3  | 2T   | 9    | X  | 0   |     | E                      |
| 4  | 2S   | 13   | U  | Z   | 0   |                        |
| 5  | 2P   | 15   | SS |     |     |                        |
| 6  | OLS  | 12   | Z  | 0   |     |                        |
| 7  | 2T   | 8    | X  | 0   |     | E                      |
| 8  | 2S   | 7    |    |     | A   | simple block introd.   |
| 9  | 6T   | 0    | Z  | W   | 0 0 | FTL(RR)                |
| 10 | 6T   | 4    | S  | F   | 0 0 |                        |
| 11 | OLS  | 8    | Y  | E   | 0   |                        |
| 12 | 6T   | 0    | Z  | W   | 0 0 | FTL(this moment's PRA) |
| 13 | 2S   | 22   | F  | Z   | 0   |                        |
| 14 | 6T   | 0    | Z  | W   | 0 0 | FTL( N = 0 )           |
| 15 | 2S   | 48   |    |     | A   |                        |
| 16 | 2T   | 26   | S  | H   | 1 A | FTL(PC) two times      |
| 17 | 2S   | 12   | Z  | E   | 0   |                        |
| 18 | 6T   | 0    | W  | 0 0 |     | FTL(Flag word)         |
| 19 | 2S   | 3    |    |     | A   |                        |
| 20 | 6T   | 0    | W  | 0 0 |     | FTL(RET)               |
| 21 | 2S   | 12   | E  | 1   |     |                        |
| 22 | OLS  | 6    | F  | Z   | 1   |                        |
| 23 | 6T   | 0    | Z  | W   | 0 0 | FTL(APC)               |
| 24 | 2S   | 31   | F  | Z   | 0   |                        |
| 25 | 6T   | 0    | Z  | W   | 0 0 | FTL(BbeginB)           |
| 26 | 2S   | 11   | E  | 0   |     |                        |
| 27 | 3LS  | 31   |    |     | A Z |                        |
| 28 | N 7Y | 1053 | C  | 0   |     |                        |
| 29 | 2T   | 0    | S  | H   | 0 A |                        |
|    | DC   |      |    |     |     |                        |
|    | DO   |      |    |     |     |                        |

INB II  
transfer of names from prescan list  
to name list

|    | DA    |    | O | S | H | O |          |
|----|-------|----|---|---|---|---|----------|
| 0  | DI 2S | 19 | Z | E | 0 |   | NLSC     |
| 1  | 6S    | 2  |   | E | 2 |   |          |
| 2  | 2B    | 23 |   | E | 0 |   | PLIB     |
| 3  | 2S    | 0  |   | X | 0 | B | new PLIB |
| 4  | 6S    | 3  |   | E | 2 |   |          |
| 5  | 2S    | 1  |   | X | 0 | B |          |
| 6  | 6S    | 0  |   | E | 2 |   | FF       |
| 7  | 2S    | 2  |   | X | 0 | B |          |
| 8  | 6S    | 31 |   | E | 1 |   | EE       |
| 9  | 2S    | 3  |   | X | 0 | B |          |
| 10 | 6S    | 30 |   | E | 1 |   | DD       |
| 11 | 2S    | 4  |   | X | 0 | B |          |
| 12 | 6S    | 29 |   | E | 1 |   | CC       |
| 13 | 2S    | 5  |   | X | 0 | B |          |
| 14 | 6S    | 28 |   | E | 1 |   | BB       |
| 15 | 2S    | 6  |   | X | 0 | B |          |
| 16 | 6S    | 27 |   | E | 1 |   | AA       |
| 17 | 2A    | 2  |   |   |   | A |          |
| 18 | 6A    | 1  |   | X | 0 |   |          |
| 19 | 2S    | 3  |   | E | 2 | Z |          |
| 20 | 1S    | 23 |   | E | 0 |   |          |
| 21 | N 1S  | 7  |   |   |   | A |          |
| 22 | Y 1S  | 1  |   |   |   | A |          |
| 23 | OS    | 19 |   | E | 0 |   |          |
| 24 | N 6S  | 1  |   | E | 2 |   |          |
| 25 | 1S    | 19 |   | E | 0 |   |          |
| 26 | N OB  | 7  |   |   |   | A |          |
| 27 | Y OB  | 1  |   |   |   | A |          |
| 28 | 3A    | 23 |   | E | 0 |   |          |
| 29 | N 1A  | 7  |   |   |   | A |          |
| 30 | Y 1A  | 1  |   |   |   | A |          |
| 31 | OA    | 19 |   | E | 0 |   |          |
|    | DC    |    |   |   |   |   |          |
|    | DO    |    |   |   |   |   |          |

|    | DA   |    | O | S | H | 1 |                  |
|----|------|----|---|---|---|---|------------------|
|    | DI   |    |   |   |   |   |                  |
| 0  | 4S   | 19 | Z | E | 0 |   |                  |
| 1  | 6T   | 0  | S | R | 0 | 0 | TR               |
| 2  | 2B   | 3  | Z | E | 2 |   |                  |
| 3  | 6B   | 23 |   | E | 0 |   |                  |
| 4  | 2S   | 0  | X | 0 | B | P |                  |
| 5  | 4T   | 20 | S | H | 0 | 1 | P                |
| 6  | 2B   | 23 | Z | E | 0 |   |                  |
| 7  | 2S   | 0  | X | 0 | B |   |                  |
| 8  | 6S   | 23 |   | E | 0 |   |                  |
| 9  | 2S   | 12 |   | E | 0 |   | Flag word        |
| 10 | 2LS  | 13 | F | Z | 1 | Z | FOFLA            |
| 11 | 2A   | 12 | Z | E | 1 |   |                  |
| 12 | 6A   | 13 |   | E | 2 |   | temporary APC    |
| 13 | 0A   | 30 |   | E | 1 |   |                  |
| 14 | 6A   | 12 |   | E | 1 |   | APC              |
| 15 | N 6T | 0  | L | W | 0 | 3 | implicit jump    |
| 16 | N 6T | 0  | S | F | 0 | 1 | 4 * FTL(PRA)     |
| 17 | N 6T | 0  | Z | W | 0 | 0 |                  |
| 18 | N 6T | 0  |   | W | 0 | 0 |                  |
| 19 | N 6T | 0  |   | W | 0 | 0 |                  |
| 20 | N 2S | 4  | F | Z | 1 |   |                  |
| 21 | N 6T | 0  | Z | W | 0 | 0 | FTL(Bfor)        |
| 22 | N 2T | 17 | S | K | 1 | A |                  |
| 23 | 2B   | 11 | Z | E | 0 |   | Z                |
| 24 | Y 2T | 3  | S | K | 0 | A |                  |
| 25 | 2T   | 0  |   | K | 0 | A |                  |
| 26 | 6T   | 0  | Z | W | 0 | 0 | insertion in SFO |
| 27 | 6T   | 0  |   | W | 0 | 0 |                  |
| 28 | 2T   | 17 | S | F | 0 | A |                  |
|    | DC   |    |   |   |   |   |                  |
|    | DO   |    |   |   |   |   |                  |

INB III

production of SCC

filling up prestack list

|    | DA    | O     | S  | K | O   |              |
|----|-------|-------|----|---|-----|--------------|
| 0  | DI    |       |    |   |     |              |
| 1  | 2B    | 0     |    |   |     | A            |
| 2  | 2S    | 5     |    |   |     | A            |
| 3  | 6T    | 0     | U  | E | 0 2 | FOT(SCC)     |
| 4  | 2S    | 11    | Z  | E | 0   |              |
| 5  | 2B    | 6     |    |   |     | A            |
| 6  | 6T    | 0     | U  | E | 0 2 | FOT(BN)      |
| 7  | 2S    | 8     |    |   |     | A            |
| 8  | 2A    | 12    | Z  | E | 0   |              |
| 9  | U 2LA | 16384 |    |   |     | A Z          |
| 10 | N 2A  | 1     | E  | 1 |     | PROFLA       |
| 11 | N 3P  | 15    | AA |   |     | name code II |
| 12 | N 2LA | 63    |    |   |     | A            |
| 13 | N 6A  | 0     | X  | 0 |     |              |
| 14 | 6S    | 19    | E  | 1 |     | pp           |
| 15 | OS    | 0     | X  | 0 |     |              |
| 16 | 6S    | 18    | E  | 1 |     | LN for LAD   |
| 17 | OS    | 30    | E  | 1 |     |              |
| 18 | OS    | 30    | E  | 1 |     |              |
| 19 | OS    | 31    | E  | 1 |     |              |
| 20 | 6S    | 21    | E  | 1 |     | qq           |
| 21 | OS    | 27    | E  | 1 |     |              |
| 22 | 6S    | 22    | E  | 1 |     | rr           |
| 23 | OS    | 28    | E  | 1 |     |              |
| 24 | 6S    | 23    | E  | 1 |     | ss           |
| 25 | OS    | 29    | E  | 1 |     |              |
| 26 | 2B    | 5     |    |   |     | A            |
| 27 | 6T    | 0     | U  | E | 0 2 | FOT(LN)      |
| 28 | 2A    | 28    | Z  | E | 1   | Z            |
| 29 | Y 2A  | 29    | E  | 1 |     | Z            |
| 30 | Y 2S  | 0     |    |   |     | A            |
| 31 | N 2S  | 22    | E  | 1 |     |              |
|    | 6T    | 22    | S  | K | 1 2 | FOT(LN)      |
|    | DC    |       |    |   |     |              |
|    | DO    |       |    |   |     |              |

|    | DA |     | O     | S | K | 1 |                      |
|----|----|-----|-------|---|---|---|----------------------|
|    | DI |     |       |   |   |   |                      |
| 0  | Y  | 2T  | 19    | S | K | 1 | A INB IV             |
| 1  |    | 2A  | 26    | Z | E | 1 | PPP                  |
| 2  |    | 0A  | 2     |   |   |   | A                    |
| 3  |    | 6A  | 24    |   | E | 1 | ppp                  |
| 4  |    | 0A  | 0     |   | E | 2 | FF                   |
| 5  |    | 6A  | 26    |   | E | 1 |                      |
| 6  |    | 2A  | 1     |   |   |   | A                    |
| 7  |    | 2B  | 25    |   | E | 1 | PSLB                 |
| 8  |    | 4A  | 0     |   | X | 0 | B                    |
| 9  |    | 2A  | 12    | U | Z | 0 |                      |
| 10 |    | 0B  | 24    | Z | E | 1 |                      |
| 11 |    | OLA | 15    | F | Z | 0 |                      |
| 12 |    | 6A  | 32766 | X | 0 | B | BI(block identifier) |
| 13 |    | 2A  | 28    | Z | E | 1 |                      |
| 14 |    | OLA | 12    | F | Z | 1 |                      |
| 15 |    | 6A  | 32767 | X | 0 | B |                      |
| 16 |    | 2T  | 19    | S | K | 1 | A                    |
| 17 |    | 2S  | 8     |   |   |   | A                    |
| 18 |    | 6S  | 18    | Z | E | 1 |                      |
| 19 |    | 2S  | 30    | Z | E | 1 | Z                    |
| 20 | N  | 2T  | 0     | S | L | 0 | A                    |
| 21 |    | 2T  | 0     | S | 0 | A | skip LAD-production  |
| 22 |    | 2A  | 0     |   |   |   | A                    |
| 23 |    | 6A  | 22    | Z | E | 1 |                      |
| 24 |    | 2A  | 28    |   | E | 1 |                      |
| 25 |    | 6A  | 23    |   | E | 1 |                      |
| 26 |    | 2T  | 0     | U | E | 0 | A                    |

DC  
DO

INB IV  
production of LAD

|    | DA   | O     | S | L  | O     |                         |
|----|------|-------|---|----|-------|-------------------------|
|    | DI   |       |   |    |       |                         |
| 0  | 2B   | 0     |   |    | A     |                         |
| 1  | 2S   | 8     |   |    | A     |                         |
| 2  | 6T   | 0     | U | E  | 0 2   | FOT(LAD)                |
| 3  | 2B   | 5     |   |    | A     |                         |
| 4  | 2S   | 18    | Z | E  | 1     |                         |
| 5  | 6T   | 0     | U | E  | 0 2   | FOT(LN)                 |
| 6  | 2B   | 5     |   |    | A     |                         |
| 7  | 2S   | 30    | Z | E  | 1     |                         |
| 8  | 6T   | 0     | U | E  | 0 2   | FOT(N)                  |
| 9  | 6S   | 0     | X | 0  |       |                         |
| 10 | 2B   | 1     | Z | E  | 2     |                         |
| 11 | 6B   | 14    |   | E  | 1     |                         |
| 12 | 2B   | 14    |   | E  | 1     |                         |
| 13 | 4P   |       |   | BA |       |                         |
| 14 | 2B   | 32767 | X | 0  | B     |                         |
| 15 | 5B   | 14    |   | E  | 1     |                         |
| 16 | 4P   |       |   | AB |       |                         |
| 17 | 2A   | 32766 | X | 0  | B Z   | label ?                 |
| 18 | N 2T | 12    | S | L  | 0 A   |                         |
| 19 | 2A   | 13    | Z | E  | 2     | temporary APC           |
| 20 | 2P   | 6     |   | AA |       |                         |
| 21 | 0A   | 11    |   | E  | 0     |                         |
| 22 | 2P   | 10    |   | AA |       |                         |
| 23 | 0A   | 18    |   | E  | 1     |                         |
| 24 | 2S   | 2     |   |    | A     |                         |
| 25 | 4S   | 18    |   | E  | 1     |                         |
| 26 | 6A   | 32766 | X | 0  | B     | name code II touched up |
| 27 | 2S   | 13    |   | E  | 2     |                         |
| 28 | 2B   | 2     |   |    | A     |                         |
| 29 | 6T   | 0     | U | E  | 0 2   | FOT(NAP)                |
| 30 | 2S   | 1     |   |    | A     |                         |
| 31 | 4S   | 13    | Z | E  | 2     |                         |
|    | DA   | O     | S | L  | 1     |                         |
|    | DI   |       |   |    |       |                         |
| 0  | 4T   | 12    |   | L  | 0 0 P |                         |
| 1  | 2T   | 0     | S | S  | 0 A   |                         |
|    | DC   |       |   |    |       |                         |
|    | DO   |       |   |    |       |                         |

TR(transport)

A = distance

B = first address to be transported

S = number

|    | DA   | O | S | R   | O   |   |
|----|------|---|---|-----|-----|---|
|    | DI   |   |   |     |     |   |
| 0  | 6A   | 0 |   | X 1 |     | P |
| 1  | N 2A | 1 |   |     | A   |   |
| 2  | Y 3A | 1 |   |     | A   |   |
| 3  | 6A   | 1 |   | X 1 |     |   |
| 4  | 6S   | 0 |   | X 0 | Z   |   |
| 5  | N 2S | 0 |   | X 0 | B   |   |
| 6  | N 0B | 0 |   | X 1 |     |   |
| 7  | N 6S | 0 |   | X 0 | B   |   |
| 8  | N 1B | 0 |   | X 1 |     |   |
| 9  | N 0B | 1 |   | X 1 |     |   |
| 10 | N 4T | 5 |   | R 0 | 0 P |   |
| 11 | 2T   | 8 |   | X 0 | E   |   |
|    | DC   |   |   |     |     |   |
|    | DO   |   |   |     |     |   |

switches and labels in INB;  
construction of name code II

|    | DA    | O     | S | S  | O |   |
|----|-------|-------|---|----|---|---|
|    | DI    |       |   |    |   |   |
| 0  | 2B    | 1     | Z | E  | 2 |   |
| 1  | 6B    | 14    |   | E  | 1 |   |
| 2  | 2B    | 14    |   | E  | 1 |   |
| 3  | 5P    |       |   | BA |   |   |
| 4  | OA    | 2     | E | 2  | Z |   |
| 5  | Y 2T  | 0     | S | T  | O | A |
| 6  | 2A    | 32767 | X | O  | B |   |
| 7  | U 2LA | 18    | F | Z  | O | Z |
| 8  | 2LA   | 32767 |   |    |   | A |
| 9  | 5A    | 14    | Z | E  | 1 |   |
| 10 | Y 2T  | 2     | S | S  | O | A |
| 11 | 2A    | 32766 | X | O  | B |   |
| 12 | 4P    |       |   | AS |   |   |
| 13 | 3P    | 15    |   | SS |   |   |
| 14 | OS    | 1     |   |    |   | A |
| 15 | 2A    | 11    | Z | E  | O |   |
| 16 | OP    | 10    |   | AA |   |   |
| 17 | OA    | 18    |   | E  | 1 |   |
| 18 | 4S    | 18    |   | E  | 1 |   |
| 19 | 6A    | 32766 | X | O  | B |   |
| 20 | 2T    | 2     | S | S  | O | A |
|    | DC    |       |   |    |   |   |
|    | DO    |       |   |    |   |   |

no switch ?

procedures in INB  
adds number in address pile to name code  
of procedures, declared in the block

|    | DA   |       | O | S | T | O |      |
|----|------|-------|---|---|---|---|------|
|    | DI   |       |   |   |   |   |      |
| 0  | 2B   | 19    | Z | E | 0 |   | NLSC |
| 1  | 6B   | 14    |   | E | 1 |   |      |
| 2  | 2B   | 14    |   | E | 1 |   |      |
| 3  | U 1B | 1     |   | E | 2 | Z |      |
| 4  | N 2A | 12    |   | E | 1 |   | APC  |
| 5  | N 4A | 32766 | X | 0 | B |   |      |
| 6  | N 2B | 32767 | X | 0 | B |   |      |
| 7  | N 5B | 14    |   | E | 1 |   |      |
| 8  | Y 2T | 12    | X | 0 |   | E |      |
| 9  | 2S   | 1     |   |   |   | A |      |
| 10 | 4S   | 12    |   | E | 1 |   |      |
| 11 | 2T   | 2     | S | T | O | A |      |
|    | DC   |       |   |   |   |   |      |
|    | DO   |       |   |   |   |   |      |

;" after formal parameter part

|   |       |            |                 |
|---|-------|------------|-----------------|
|   | DA    | O S U O    |                 |
|   | DI    |            |                 |
| 0 | 2B    | 4 Y E 1 A  |                 |
| 1 | 6T    | 0 K N 0 0  | require         |
| 2 | N 7Y  | 1054 C 0   |                 |
| 3 | 2A    | 12 Z E 0   |                 |
| 4 | U 2LA | 2 A Z      |                 |
| 5 | N 2B  | 6 Y E 1 A  | clear Flag word |
| 6 | Y 2B  | 23 Y E 1 A | COFLA & SFLA    |
| 7 | 6T    | 0 L Z 0 0  | put             |
| 8 | N 6T  | 0 S E 0 4  | INB I           |
| 9 | 2T    | 0 Z Y 0 A  |                 |
|   | DC    |            |                 |
|   | DO    |            |                 |

"," after specification  
See also page 154, construction of value assignments

|    | DA    | O     | S | Y | O   |         |
|----|-------|-------|---|---|-----|---------|
|    | DI    |       |   |   |     |         |
| 0  | 2B    | 2     | Y | E | 1   | A       |
| 1  | 6T    | 0     | K | N | 0   | O       |
| 2  | N 7Y  | 1054  | C | O |     |         |
| 3  | 2A    | 0     | Z | E | 1   |         |
| 4  | U 2LA | 30    | Y | E | 0   | Z       |
| 5  | Y 7Y  | 1054  | C | O |     |         |
| 6  | 2S    | 12    | Z | E | 0   |         |
| 7  | U 2LS | 1024  |   |   | A Z | AFLA    |
| 8  | Y 2T  | 12    | S | Y | 0   | A       |
| 9  | U 2LS | 14848 |   |   | A Z |         |
| 10 | N 7Y  | 1054  | C | O |     |         |
| 11 | 2T    | 11    | T | L | 0   | A       |
| 12 | U 2LS | 512   |   |   | A Z | POFLA   |
| 13 | Y 2T  | 20    | S | Y | 0   | A       |
| 14 | U 2LS | 15360 |   |   | A Z |         |
| 15 | N 7Y  | 1054  | C | O |     |         |
| 16 | 6T    | 28    | T | L | 2   | O       |
| 17 | U 2LS | 224   |   |   | A Z |         |
| 18 | Y 7Y  | 1054  | C | O |     |         |
| 19 | 2T    | 30    | T | L | 0   | A       |
| 20 | U 2LS | 2048  |   |   | A Z | LEFLA   |
| 21 | Y 2T  | 25    | S | Y | 0   | A       |
| 22 | U 2LS | 13824 |   |   | A Z |         |
| 23 | N 7Y  | 1054  | C | O |     |         |
| 24 | 2T    | 23    | T | L | 1   | A       |
| 25 | U 2LS | 8192  |   |   | A Z | STRIFLA |
| 26 | Y 2T  | 30    | S | Y | 0   | A       |
| 27 | 2LS   | 8160  |   |   | A Z |         |
| 28 | N 7Y  | 1054  | C | O |     |         |
| 29 | 2T    | 31    | T | L | 2   | A       |
| 30 | U 2LS | 4096  |   |   | A Z | SIFLA   |
| 31 | Y 2T  | 16    | T | L | 2   | A       |
|    | DC    |       |   |   |     |         |
|    | DO    |       |   |   |     |         |

DA O S Y 1  
DI  
0 U 2LS 12256 A Z  
1 N 7Y 1054 C O  
2 2T 31 T L 2 A calculate Q from Flag word  
DC  
DO

";" after value part

|   | DA   |       | O | S | N | O |              |
|---|------|-------|---|---|---|---|--------------|
|   | DI   |       |   |   |   |   |              |
| 0 | 2B   | 26    | Y | E | O | A |              |
| 1 | 6T   | 0     | K | N | O | O | require      |
| 2 | N 7Y | 1054  | C | O |   |   |              |
| 3 | 2S   | 1     | Z | E | 1 |   | name code II |
| 4 | OS   | 2     | F | Z | O |   | value bit    |
| 5 | 2B   | 16    | Z | E | 1 |   | NID          |
| 6 | 6S   | 32766 | X | O | B |   |              |
| 7 | 2B   | 23    | Y | E | 1 | A |              |
| 8 | 6T   | 0     | L | Z | O | O | put          |
| 9 | 2T   | 0     | Z | Y | O | A |              |
|   | DC   |       |   |   |   |   |              |
|   | DO   |       |   |   |   |   |              |

"," after switch declaration

|    | DA    | O     | T | Z | O   |                             |
|----|-------|-------|---|---|-----|-----------------------------|
|    | DI    |       |   |   |     |                             |
| 0  | 6T    | 16    | T | S | 0 0 | simple case ?               |
| 1  | N 6T  | 0     | L | F | 0 5 | NNP                         |
| 2  | N 6T  | 0     | R | F | 0 6 | conditional expressions     |
| 3  | 2A    | 1     |   |   | A   |                             |
| 4  | 4A    | 26    | Z | E | 0   |                             |
| 5  | 2B    | 26    |   | E | 0   |                             |
| 6  | 6T    | 22    | T | S | 0 0 | shifting in translator list |
| 7  | Y 6T  | 27    |   | S | 0 0 | insert PDA                  |
| 8  | N 2S  | 8     | Z | E | 2   |                             |
| 9  | N OS  | 9     | F | Z | 0   |                             |
| 10 | N 6S  | 32767 | X |   | 0 B |                             |
| 11 | N 2B  | 0     |   |   | A   |                             |
| 12 | N 2S  | 4     |   |   | A   |                             |
| 13 | N 6T  | 21    | W | F | 0 2 | FOT(EIS)                    |
| 14 | 2A    | 12    | Z | E | 0   |                             |
| 15 | U 2LA | 16    |   |   | A Z | DEFLA                       |
| 16 | Y 7Y  | 1090  | C |   | 0   |                             |
| 17 | 2LA   | 15    | F | Z | 0 Z | PEFLA                       |
| 18 | Y 6T  | 13    | R | F | 0 3 |                             |
| 19 | 6T    | 0     | R | W | 0 5 | backward scanner V          |
| 20 | 2T    | 0     | Z | Y | 0 A |                             |
|    | DC    |       |   |   |     |                             |
|    | DO    |       |   |   |     |                             |

;" after array declaration

|   | DA   | O    | T | E | O |         |
|---|------|------|---|---|---|---------|
|   | DI   |      |   |   |   |         |
| 0 | 2B   | 22   | Y | E | 4 | A       |
| 1 | 6T   | 0    | K | N | 0 | O       |
| 2 | N 7Y | 1085 | C | O |   | require |
| 3 | 2B   | 11   | Y | E | 0 | A       |
| 4 | 6T   | 0    | L | Z | 0 | O       |
| 5 | 2T   | 0    | Z | Y | 0 | A       |
|   | DC   |      |   |   |   |         |
|   | DO   |      |   |   |   |         |

;" after variable declaration

|   | DA   | O    | T | F | O |   |
|---|------|------|---|---|---|---|
|   | DI   |      |   |   |   |   |
| 0 | 2B   | 6    | Y | E | 1 | A |
| 1 | 6T   | 0    | K | N | 0 | 0 |
| 2 | N 7Y | 1054 | C | 0 |   |   |
| 3 | 6T   | 5    | T | T | 0 | 1 |
| 4 | 2B   | 6    | Y | E | 1 | A |
| 5 | 6T   | 0    | L | Z | 0 | 0 |
| 6 | 2T   | 0    | Z | Y | 0 | A |
|   | DC   |      |   |   |   |   |
|   | DO   |      |   |   |   |   |

require

like "," type list  
separator

put

"," in value list

|   | DA   |       | O | T | H | O |              |
|---|------|-------|---|---|---|---|--------------|
|   | DI   |       |   |   |   |   |              |
| 0 | 2B   | 26    | Y | E | O | A |              |
| 1 | 6T   | 0     | K | N | O | O | require      |
| 2 | N 7Y | 1063  | C | O |   |   |              |
| 3 | 2S   | 1     | Z | E | 1 |   | name code II |
| 4 | OS   | 2     | F | Z | O |   | value bit    |
| 5 | 2B   | 16    | Z | E | 1 |   | NID          |
| 6 | 6S   | 32766 | X | O | B |   |              |
| 7 | 2T   | 0     | Z | Y | O | A |              |
|   | DC   |       |   |   |   |   |              |
|   | DO   |       |   |   |   |   |              |

"," formal variable separator

|    |      |            |              |
|----|------|------------|--------------|
|    | DA   | O T K O    |              |
|    | DI   |            |              |
| 0  | 2B   | 28 Y E O A |              |
| 1  | 6T   | 0 K N O O  | require      |
| 2  | N 7Y | 1063 C O   |              |
| 3  | 2A   | 20 Z E O   |              |
| 4  | 1A   | 19 E O     |              |
| 5  | OA   | 30 Y E O   |              |
| 6  | 6A   | 0 Z E 1    | name code I  |
| 7  | 6T   | 10 T K O O |              |
| 8  | 6T   | 0 F F O O  | FNL          |
| 9  | 2T   | 0 Z Y O A  |              |
| 10 | 2A   | 11 E O     | BN           |
| 11 | 2P   | 10 AA      |              |
| 12 | OA   | 19 E 1     | pp           |
| 13 | 6A   | 1 E 1      | name code II |
| 14 | 2S   | 2 A        |              |
| 15 | 4S   | 19 E 1     | pp:= pp+2    |
| 16 | 2T   | 8 X O E    |              |
|    | DC   |            |              |
|    | DO   |            |              |

", " specification separator  
construction of value assignments

|    | DA    | O     | T | L | O |                              |
|----|-------|-------|---|---|---|------------------------------|
|    | DI    |       |   |   |   |                              |
| 0  | 2B    | 2     | Y | E | 1 | A                            |
| 1  | 6T    | 0     | K | N | 0 | 0 require                    |
| 2  | N 7Y  | 1063  | C | 0 |   |                              |
| 3  | 2A    | 0     | Z | E | 1 |                              |
| 4  | U 2LA | 30    | Y | E | 0 | Z AFLA                       |
| 5  | Y 7Y  | 1063  | C | 0 |   |                              |
| 6  | 2S    | 12    | Z | E | 0 |                              |
| 7  | U 2LS | 1024  |   |   |   | A Z                          |
| 8  | Y 2T  | 23    | T | L | 0 | A                            |
| 9  | U 2LS | 14848 |   |   |   | A Z                          |
| 10 | N 7Y  | 1063  | C | 0 |   |                              |
| 11 | 6T    | 28    | T | L | 2 | 0                            |
| 12 | 2B    | 0     |   |   |   | A                            |
| 13 | U 2LS | 32    |   |   |   | A Z BOFLA                    |
| 14 | N 2S  | 11    |   |   |   | A VBAD                       |
| 15 | N 2T  | 19    | T | L | 0 | A                            |
| 16 | U 2LS | 64    |   |   |   | A Z INFLA                    |
| 17 | N 2S  | 10    |   |   |   | A VIAD                       |
| 18 | Y 2S  | 9     |   |   |   | A VRAD                       |
| 19 | 6T    | 0     | U | E | 0 | 2 FOT(macro-order)           |
| 20 | 2B    | 5     |   |   |   | A                            |
| 21 | 6T    | 18    | T | L | 4 | 3 FOT(LN)                    |
| 22 | 2T    | 31    | T | L | 2 | A calculate Q from Flag word |
| 23 | U 2LS | 512   |   |   |   | A Z POFLA                    |
| 24 | Y 2T  | 19    | T | L | 1 | A                            |
| 25 | U 2LS | 15360 |   |   |   | A Z                          |
| 26 | N 7Y  | 1063  | C | 0 |   |                              |
| 27 | 6T    | 28    | T | L | 2 | 0                            |
| 28 | U 2LS | 224   |   |   |   | A Z                          |
| 29 | Y 7Y  | 1063  | C | 0 |   |                              |
| 30 | 2B    | 0     |   |   |   | A                            |
| 31 | U 2LS | 96    |   |   |   | A Z                          |
|    | DC    |       |   |   |   |                              |
|    | DO    |       |   |   |   |                              |

|    | DA    | O     | T | L | 1   |                  |
|----|-------|-------|---|---|-----|------------------|
| 0  | Y 2S  | 27    |   |   | A   | TRA              |
| 1  | N 2S  | 28    |   |   | A   | TIA              |
| 2  | 6T    | 0     | U | E | 0 2 | FOT(macro-order) |
| 3  | 2B    | 1     |   |   | A   |                  |
| 4  | 6T    | 14    | T | L | 4 3 | FOT(DA)          |
| 5  | 2B    | 0     |   |   | A   |                  |
| 6  | 2S    | 46    |   |   | A   |                  |
| 7  | 6T    | 0     | U | E | 0 2 | FOT(FPCR)        |
| 8  | 2B    | 6     |   |   | A   |                  |
| 9  | 2S    | 0     |   |   | A   |                  |
| 10 | 6T    | 0     | U | E | 0 2 | FOT(N)           |
| 11 | 2B    | 1     |   |   | A   |                  |
| 12 | 6T    | 14    | T | L | 4 3 | FOT(DA)          |
| 13 | 2B    | 0     |   |   | A   |                  |
| 14 | 2S    | 6     |   |   | A   |                  |
| 15 | 6T    | 0     | U | E | 0 2 | FOT(TNR)         |
| 16 | 2S    | 49    |   |   | A   |                  |
| 17 | 6T    | 0     | U | E | 0 2 | FOT(ST)          |
| 18 | 2T    | 31    | T | L | 2 A | calculate Q      |
| 19 | U 2LS | 2048  |   |   | A Z | LEFLA            |
| 20 | Y 2T  | 6     | T | L | 2 A |                  |
| 21 | U 2LS | 13824 |   |   | A Z |                  |
| 22 | N 7Y  | 1063  | C | 0 |     |                  |
| 23 | 6T    | 28    | T | L | 2 0 |                  |
| 24 | 2B    | 0     |   |   | A   |                  |
| 25 | 2S    | 28    |   |   | A   |                  |
| 26 | 6T    | 0     | U | E | 0 2 | FOT(TIA)         |
| 27 | 2B    | 1     |   |   | A   |                  |
| 28 | 6T    | 14    | T | L | 4 3 | FOT(DA)          |
| 29 | 2B    | 0     |   |   | A   |                  |
| 30 | 2S    | 44    |   |   | A   |                  |
| 31 | 6T    | 0     | U | E | 0 2 | FOT(TFL)         |
|    | DC    |       |   |   |     |                  |
|    | DO    |       |   |   |     |                  |

|    | DA    | O     | T | L | 2 |                   |
|----|-------|-------|---|---|---|-------------------|
|    | DI    |       |   |   |   |                   |
| 0  | 2B    | 1     |   |   | A |                   |
| 1  | 6T    | 14    | T | L | 4 | 3 FOT(DA)         |
| 2  | 2B    | 0     |   |   | A |                   |
| 3  | 2S    | 75    |   |   | A |                   |
| 4  | 6T    | 0     | U | E | 0 | 2 FOT(STL)        |
| 5  | 2T    | 31    | T | L | 2 | A calculate Q     |
| 6  | U 2LS | 8192  |   |   | A | Z STRIFLA         |
| 7  | Y 2T  | 11    | T | L | 2 | A                 |
| 8  | 2LS   | 8160  |   |   | A | Z                 |
| 9  | N 7Y  | 1063  | C | O |   |                   |
| 10 | 2T    | 31    | T | L | 2 | A calculate Q     |
| 11 | U 2LS | 4096  |   |   | A | Z SIFLA           |
| 12 | Y 2T  | 16    | T | L | 2 | A                 |
| 13 | U 2LS | 12256 |   |   | A | Z                 |
| 14 | N 7Y  | 1063  | C | O |   |                   |
| 15 | 2T    | 31    | T | L | 2 | A Calculate Q     |
| 16 | 6T    | 28    | T | L | 2 | O                 |
| 17 | 2B    | 0     |   |   | A |                   |
| 18 | U 2LS | 96    |   |   | A | Z                 |
| 19 | Y 2S  | 27    |   |   | A |                   |
| 20 | N 2S  | 28    |   |   | A |                   |
| 21 | 6T    | 0     | U | E | 0 | 2 FOT(TRA or TIA) |
| 22 | 2B    | 1     |   |   | A |                   |
| 23 | 6T    | 14    | T | L | 4 | 3 FOT(DA)         |
| 24 | 2B    | 0     |   |   | A |                   |
| 25 | 2S    | 41    |   |   | A |                   |
| 26 | 6T    | 0     | U | E | 0 | 2 FOT(TFR)        |
| 27 | 2T    | 11    | T | L | 1 | A                 |
| 28 | 2A    | 1     | Z | E | 1 |                   |
| 29 | U 2LA | 2     | F | Z | 0 | Z if value return |
| 30 | N 2T  | 8     | X | O |   | E else go on      |
| 31 | 2S    | 12    | Z | E | 0 |                   |
|    | DC    |       |   |   |   |                   |
|    | DO    |       |   |   |   |                   |

|    | DA | O   | T     | L     | 3 |   |                     |
|----|----|-----|-------|-------|---|---|---------------------|
|    | DI |     |       |       |   |   |                     |
| 0  | U  | 2LS | 1536  |       | A | Z | AFLA & POFLA        |
| 1  | N  | 2T  | 21    | T L 4 | A |   |                     |
| 2  |    | 2A  | 1     | Z E 1 |   |   | name code II        |
| 3  | U  | 2LA | 2     | F Z 0 | Z |   | erase value bit     |
| 4  | N  | 1A  | 2     | Z 0   |   |   |                     |
| 5  | N  | 2B  | 16    | Z E 1 |   |   |                     |
| 6  | N  | 6A  | 32766 | X 0 B |   |   |                     |
| 7  | N  | 2A  | 0     |       | A |   |                     |
| 8  | Y  | 2A  | 2     |       | A |   |                     |
| 9  | U  | 2LS | 64    |       | A | Z | INFLA               |
| 10 | N  | OA  | 4     |       | A |   |                     |
| 11 | U  | 2LS | 128   |       | A | Z | REFLA               |
| 12 | N  | OA  | 5     |       | A |   |                     |
| 13 | U  | 2LS | 512   |       | A | Z | POFLA               |
| 14 | Y  | 2T  | 26    | T L 3 | A |   |                     |
| 15 |    | OA  | 32    |       | A |   |                     |
| 16 | U  | 2LS | 224   |       | A | Z | BOFLA, INFLA, REFLA |
| 17 | N  | OA  | 256   |       | A |   |                     |
| 18 |    | 2T  | 0     | T L 4 | A |   |                     |
| 19 |    | 2A  | 10    |       | A |   |                     |
| 20 | U  | 2LS | 32    |       | A | Z | BOFLA               |
| 21 | N  | 2T  | 0     | T L 4 | A |   |                     |
| 22 | U  | 2LS | 64    |       | A | Z | INFLA               |
| 23 |    | OA  | 4     |       | A |   |                     |
| 24 | Y  | OA  | 1     |       | A |   |                     |
| 25 |    | 2T  | 0     | T L 4 | A |   |                     |
| 26 | U  | 2LS | 2048  |       | A | Z | LEFLA               |
| 27 | N  | OA  | 64    |       | A |   |                     |
| 28 | U  | 2LS | 4096  |       | A | Z | SIFLA               |
| 29 | N  | OA  | 16    |       | A |   |                     |
| 30 | U  | 2LS | 8192  |       | A | Z | STRIFLA             |
| 31 | N  | OA  | 128   |       | A |   |                     |
|    | DC |     |       |       |   |   |                     |
|    | DO |     |       |       |   |   |                     |

|    | DA    | O T L 4     |              |
|----|-------|-------------|--------------|
|    | DI    |             |              |
| 0  | 2P    | 16 AA       |              |
| 1  | 2B    | 16 Z E 1    | NID          |
| 2  | 2B    | 32767 X 0 B |              |
| 3  | 4P    | BS          |              |
| 4  | 2B    | 16 Z E 1    |              |
| 5  | 6S    | 32767 X 0 B |              |
| 6  | 4A    | 32767 X 0 B |              |
| 7  | 2S    | 0 F Z 0     |              |
| 8  | 4S    | 32766 X 0 B |              |
| 9  | 2S    | 8 Z E 0     |              |
| 10 | U 1S  | 87 A Z      |              |
| 11 | N 2B  | 6 Y E 1 A   |              |
| 12 | N 6T  | 0 L Z 0 0   | put          |
| 13 | 2T    | 0 Z Y 0 A   |              |
| 14 | 2S    | 1 E 1       | name code II |
| 15 | 2LS   | 32767 A     |              |
| 16 | 6T    | 0 U E 0 2   | FOT(DA)      |
| 17 | 2T    | 11 X 0 E    |              |
| 18 | 2S    | 1 Z E 1     |              |
| 19 | 2LS   | 1023 A      |              |
| 20 | 2T    | 16 T L 4 A  | FOT(LN)      |
| 21 | U 2LS | 1024 A Z    | AFLA         |
| 22 | N 2T  | 19 T L 3 A  |              |
| 23 | 2A    | 1 Z E 1     |              |
| 24 | 2LA   | 2 F Z 0 Z   | non-value ?  |
| 25 | N 1S  | 512 A       |              |
| 26 | 2T    | 2 T L 3 A   |              |
|    | DC    |             |              |
|    | DO    |             |              |

", " array segment separator

|    | DA   | O    | T | R | O   |                       |
|----|------|------|---|---|-----|-----------------------|
|    | DI   |      |   |   |     |                       |
| 0  | 2A   | 12   | Z | E | 0   |                       |
| 1  | 2LA  | 2048 |   |   | A Z | LEFLA                 |
| 2  | N 2T | 10   | T | R | O A | after bound pair list |
| 3  | 2B   | 20   | Y | E | 4 A |                       |
| 4  | 6T   | 0    | K | N | O O | require               |
| 5  | N 7Y | 1084 | C | O |     |                       |
| 6  | 2A   | 1    |   |   | A   |                       |
| 7  | 4A   | 9    | Z | E | 2   | array counter         |
| 8  | 6T   | 0    | T | W | O 1 | FNC I                 |
| 9  | 2T   | 15   | T | R | O A |                       |
| 10 | 2B   | 22   | Y | E | 4 A |                       |
| 11 | 6T   | 0    | K | N | O O | require               |
| 12 | N 7Y | 1084 | C | O |     |                       |
| 13 | 2A   | 2048 |   |   | A   |                       |
| 14 | 5A   | 12   | Z | E | 0   | LEFLA                 |
| 15 | N 2B | 24   | Y | E | 4 A |                       |
| 16 | N 6T | 0    | L | Z | O O | put                   |
| 17 | 2T   | 0    | Z | Y | O A |                       |
|    | DC   |      |   |   |     |                       |
|    | DO   |      |   |   |     |                       |

", " switch list separator

|    | DA    | O T S O       |                             |
|----|-------|---------------|-----------------------------|
|    | DI    |               |                             |
| 0  | 6T    | 16 T S O O    | simple case                 |
| 1  | N 6T  | 0 L F O 5     | NNP                         |
| 2  | N 6T  | 0 R F O 6     | conditional expressions     |
| 3  | 2A    | 1 A           |                             |
| 4  | 4A    | 26 Z E O      |                             |
| 5  | 2B    | 26 E O        |                             |
| 6  | 4A    | 32763 X O B   | counting elements           |
| 7  | 6T    | 22 T S O O    | shift in translator list    |
| 8  | Y 6T  | 27 S O O      | insert PDA                  |
| 9  | N 2S  | 8 Z E 2       |                             |
| 10 | N OS  | 9 F Z O       |                             |
| 11 | N 6S  | 32767 X O B   |                             |
| 12 | N 2B  | 0 A           |                             |
| 13 | N 2S  | 4 A           |                             |
| 14 | N 6T  | 21 W F O 2    | FOT(EIS)                    |
| 15 | 2T    | 26 W H O A    |                             |
| 16 | 2A    | 12 Z E O      |                             |
| 17 | U 2LA | 2048 A Z      | LEFLA                       |
| 18 | Y 2B  | 26 E O        |                             |
| 19 | Y 2S  | 32767 X O B   | Bswitch on translator list? |
| 20 | Y 1S  | 9 Y E 4 Z     |                             |
| 21 | 2T    | 8 X O         |                             |
| 22 | 2S    | 32766 X O B P |                             |
| 23 | N 2T  | 8 X O E       |                             |
| 24 | 6S    | 32767 X O B   |                             |
| 25 | 1B    | 1 A           |                             |
| 26 | 2T    | 22 T S O A    |                             |
| 27 | 2S    | 1 Z E 1       |                             |
| 28 | 2LS   | 32767 A       |                             |
| 29 | OS    | 13 Y E 4      |                             |
| 30 | 6S    | 32767 X O B   |                             |
| 31 | 2T    | 8 X O E       |                             |
|    | DC    |               |                             |
|    | DO    |               |                             |

"," type list separator

|    | DA    | O    | T  | T | O |     |
|----|-------|------|----|---|---|-----|
|    | DI    |      |    |   |   |     |
| 0  | 2B    | 6    | Y  | E | 1 | A   |
| 1  | 6T    | 0    | K  | N | 0 | O   |
| 2  | N 7Y  | 1063 | C  | O |   |     |
| 3  | 6T    | 5    | T  | T | 0 | 1   |
| 4  | 2T    | 0    | Z  | Y | 0 | A   |
| 5  | 2S    | 12   | Z  | E | 0 |     |
| 6  | U 2LS | 32   |    |   |   | A Z |
| 7  | Y 2T  | 10   | T  | T | 0 | A   |
| 8  | 2A    | 0    |    |   |   | A   |
| 9  | 2T    | 13   | T  | T | 0 | A   |
| 10 | U 2LS | 64   |    |   |   | A Z |
| 11 | Y 2A  | 5    |    |   |   | A   |
| 12 | N 2A  | 4    |    |   |   | A   |
| 13 | 2P    | 16   | AA |   |   |     |
| 14 | OA    | 20   | Z  | E | 0 |     |
| 15 | 1A    | 19   | E  | 0 |   |     |
| 16 | OA    | 3    |    |   |   | A   |
| 17 | 6A    | 0    | E  | 1 |   |     |
| 18 | 2A    | 11   | E  | 0 |   |     |
| 19 | 2P    | 10   | AA |   |   |     |
| 20 | U 2LS | 256  |    |   |   | A Z |
| 21 | N OA  | 9    | F  | Z | 0 |     |
| 22 | N OA  | 22   | Z  | E | 1 |     |
| 23 | Y OA  | 21   | E  | 1 |   |     |
| 24 | 6A    | 1    | E  | 1 |   |     |
| 25 | 2A    | 1    |    |   |   | A   |
| 26 | N 2T  | 31   | T  | T | 0 | A   |
| 27 | U 2LS | 128  |    |   |   | A Z |
| 28 | N OA  | 8    | Z  | E | 1 |     |
| 29 | 4A    | 21   | E  | 1 |   |     |
| 30 | 2T    | 2    | T  | T | 1 | A   |
| 31 | U 2LS | 128  |    |   |   | A Z |
|    | DC    |      |    |   |   |     |
|    | DC    |      |    |   |   |     |

|                            |
|----------------------------|
| require                    |
| see also the corresponding |
| ","                        |
| BOFLA                      |
| INFLA                      |
| TNLSC                      |
| name code I                |
| BN                         |
| WOFLA                      |
| rr                         |
| qq                         |
| name code II               |
| REFLA                      |
| qq                         |
| REFLA                      |

DA O T T 1  
DI  
0 N OA 8 Z E 1  
1 4A 22 E 1 rr  
2 6T 0 F F 0 0 FNL  
3 2T 9 X 0 E  
DC  
DO

FNC(fill name code) I

|    | DA    | O   | T  | W | O   |                          |
|----|-------|-----|----|---|-----|--------------------------|
|    | DI    |     |    |   |     |                          |
| 0  | 2S    | 12  | Z  | E | O   |                          |
| 1  | 2A    | 8   |    |   |     | A                        |
| 2  | U 2LS | 32  |    |   |     | A Z BOFLA                |
| 3  | N 2T  | 7   | T  | W | O   | A Z                      |
| 4  | U 2LS | 64  |    |   |     | A Z INFLA                |
| 5  | OA    | 4   |    |   |     | A                        |
| 6  | Y OA  | 1   |    |   |     | A                        |
| 7  | 2P    | 16  | AA |   |     |                          |
| 8  | OA    | 20  | Z  | E | O   | TNLSC                    |
| 9  | 1A    | 19  | E  | O |     | -NLSC                    |
| 10 | OA    | 3   |    |   |     | A                        |
| 11 | 6A    | 0   | E  | 1 |     | name code I              |
| 12 | 2A    | 11  | E  | O |     | BN                       |
| 13 | 2P    | 10  | AA |   |     |                          |
| 14 | U 2LS | 256 |    |   |     | A Z WOFLA                |
| 15 | N OA  | 9   | F  | Z | O   |                          |
| 16 | 6A    | 1   | Z  | E | 1   | provisional name code II |
| 17 | 6T    | 0   | F  | F | O O | FNL                      |
| 18 | 2T    | 9   | X  | O | E   |                          |
|    | DC    |     |    |   |     |                          |
|    | DO    |     |    |   |     |                          |

"," actual parameter separator

|   |        |            |         |
|---|--------|------------|---------|
|   | DA     | O T U O    |         |
|   | DI     |            |         |
| 0 | 6T     | 11 W S O 7 | TAP     |
| 1 | 2B     | 16 Y E 4 A |         |
| 2 | 6T     | 0 K N O O  | require |
| 3 | 6T     | 0 L Z O O  | put     |
| 4 | N 7Y   | 1063 C O   |         |
| 5 | 2LA 31 | A Z        |         |
| 6 | Y 7Y   | 1063 C O   |         |
| 7 | 6T     | 0 R R O 1  | IPW     |
| 8 | 2T     | 0 Z Y O A  |         |
|   | DC     |            |         |
|   | DO     |            |         |

"," for list separator

|    | DA    | O    | T | Y | O |                    |
|----|-------|------|---|---|---|--------------------|
|    | DI    |      |   |   |   |                    |
| 0  | 2B    | 31   | Y | E | 3 | A                  |
| 1  | 6T    | 0    | K | N | 0 | O require          |
| 2  | N 7Y  | 1081 | C | 0 |   |                    |
| 3  | 2S    | 12   | Z | E | 0 |                    |
| 4  | U 2LS | 15   |   |   |   | A Z                |
| 5  | Y 7Y  | 1081 | C | 0 |   |                    |
| 6  | U 2LS | 15   | Y | E | 3 | Z WIFLA            |
| 7  | Y 2T  | 12   | T | Y | 0 | A                  |
| 8  | U 2LS | 8    |   |   |   | A Z                |
| 9  | N 7Y  | 1081 | C | 0 |   |                    |
| 10 | 2S    | 21   |   |   |   | A FOR3             |
| 11 | 2T    | 17   | T | Y | 0 | A                  |
| 12 | U 2LS | 8    |   |   |   | A Z                |
| 13 | Y 7Y  | 1081 | C | 0 |   |                    |
| 14 | U 2LS | 16   | Y | E | 3 | Z SUFLA            |
| 15 | N 2S  | 24   |   |   |   | A FOR6             |
| 16 | Y 2S  | 20   |   |   |   | A FOR2             |
| 17 | 2B    | 0    |   |   |   | A                  |
| 18 | 6T    | 0    | U | E | 0 | 2 FOT(macro-order) |
| 19 | 2B    | 31   | Y | E | 3 | A                  |
| 20 | 6T    | 0    | L | Z | 0 | O put              |
| 21 | 2T    | 0    | Z | Y | 0 | A                  |
|    | DC    |      |   |   |   |                    |
|    | DO    |      |   |   |   |                    |

"," index separator

|   | DA   | O    | T | N | O   |
|---|------|------|---|---|-----|
|   | DI   |      |   |   |     |
| 0 | 2B   | 28   | Y | E | 4 A |
| 1 | 6T   | 0    | K | N | 0 0 |
| 2 | N 7Y | 1087 | C | 0 |     |
| 3 | 2B   | 24   | Y | E | 4 A |
| 4 | 6T   | 0    | L | Z | 0 0 |
| 5 | 3A   | 1    |   |   | A   |
| 6 | 2B   | 26   | Z | E | 0   |
| 7 | 6T   | 13   | W | E | 0 2 |
| 8 | 2T   | 0    | Z | Y | 0 A |
|   | DC   |      |   |   |     |
|   | DO   |      |   |   |     |

require

put

counting indices

", " index separator

//bound pair

|   | DA   |      | O | W | Z | O   |
|---|------|------|---|---|---|-----|
|   | DI   |      |   |   |   |     |
| 0 | 2B   |      | 4 | Y | Z | 0 A |
| 1 | 6T   |      | 0 | K | N | 0 0 |
| 2 | N 7Y | 1083 |   | C |   | 0   |
| 3 | 6T   |      | 0 | L | Z | 0 0 |
| 4 | 2A   | 1    |   |   |   | A   |
| 5 | 4A   | 10   | Z | E | 2 |     |
| 6 | 2T   | 0    | Y | 0 | A |     |
|   | DC   |      |   |   |   |     |
|   | DO   |      |   |   |   |     |

require

put

dimension counter

" )" after formal parameter

|    |      |             |
|----|------|-------------|
|    | DA   | O W E O     |
|    | DI   |             |
| 0  | 2B   | 28 Y E O A  |
| 1  | 6T   | 0 K N O O   |
| 2  | N 7Y | 1064 C O    |
| 3  | 2A   | 20 Z E O    |
| 4  | 1A   | 19 E O      |
| 5  | 0A   | 30 Y E O    |
| 6  | 6A   | 0 Z E 1     |
| 7  | 6T   | 10 T K O O  |
| 8  | 6T   | 0 F F O O   |
| 9  | 6T   | 0 R W O 5   |
| 10 | 2S   | 0 F Z O     |
| 11 | 5S   | 12 Z E O    |
| 12 | 2T   | 0 Y O A     |
| 13 | 2S   | 32766 X O B |
| 14 | 6T   | 10 R R O 1  |
| 15 | 2T   | 10 X O E    |

DC  
DO

require

name code I

name code II

FNL

backward scanner V

erase NIFLA

index counter

part of IPW

" )" after actual parameter

|    |      |             |  |
|----|------|-------------|--|
|    | DA   | O W F O     |  |
|    | DI   |             |  |
| 0  | 6T   | 11 W S O 7  |  |
| 1  | 2S   | 12 Z E O    |  |
| 2  | 2LS  | 15 F Z O Z  |  |
| 3  | Y 6T | 13 R F O 3  |  |
| 4  | 2B   | 28 Y E 2 A  |  |
| 5  | 6T   | 0 K N O O   |  |
| 6  | N 7Y | 1064 C O    |  |
| 7  | 2A   | 12 Z E O    |  |
| 8  | 2LA  | 31 A Z      |  |
| 9  | Y 7Y | 1064 C O    |  |
| 10 | 2B   | 26 Z E O    |  |
| 11 | 2S   | 32767 X O B |  |
| 12 | OLS  | 21 Y E O Z  |  |
| 13 | N 7Y | 1064 C O    |  |
| 14 | 6T   | 0 R W O 5   |  |
| 15 | 2S   | 12 Z E O    |  |
| 16 | 2LS  | 31 A        |  |
| 17 | 6S   | 31 E O      |  |
| 18 | 2B   | 15 Y E 3 A  |  |
| 19 | 6T   | 0 L Z O O   |  |
| 20 | 2T   | 0 Z Y O A   |  |
| 21 | 2A   | 1 A         |  |
| 22 | 5A   | 11 Z E O    |  |
| 23 | 2T   | 0 U E O A   |  |
|    | DC   |             |  |
|    | DO   |             |  |

TAP

PEFLA  
FOT(PRA)

require

B(actpar on translator list?

backward scanner V

T' := T

put

FOT

:= in switch declaration

|    | DA   | O    | W  | H | O   |
|----|------|------|----|---|-----|
|    | DI   |      |    |   |     |
| 0  | 2B   | 4    | Y  | E | 4 A |
| 1  | 6T   | 0    | K  | N | 0 0 |
| 2  | N 7Y | 1082 | C  | 0 |     |
| 3  | 6T   | 0    | L  | Z | 0 0 |
| 4  | 3S   | 15   | F  | Z | 1   |
| 5  | 6T   | 0    | Z  | W | 0 0 |
| 6  | 2S   | 3    | Y  | E | 5   |
| 7  | 6T   | 0    | Z  | W | 0 0 |
| 8  | 2S   | 1    | E  | 1 |     |
| 9  | 2LS  | 1023 |    |   | A   |
| 10 | OS   | 12   | F  | Z | 1   |
| 11 | 6T   | 0    | Z  | W | 0 0 |
| 12 | 2S   | 8    | Y  | E | 4   |
| 13 | 6T   | 0    | Z  | W | 0 0 |
| 14 | 2S   | 9    | Y  | E | 4   |
| 15 | 6T   | 0    | Z  | W | 0 0 |
| 16 | 6T   | 18   | W  | H | 0 0 |
| 17 | 2T   | 0    | Z  | Y | 0 A |
| 18 | 2S   | 13   | U  | Z | 0   |
| 19 | 2P   | 15   | SS |   |     |
| 20 | OLS  | 12   | Z  | 0 |     |
| 21 | 6S   | 8    | Z  | E | 2   |
| 22 | 2T   | 8    | X  | 0 | E   |
| 23 | 2B   | 2    | Y  | E | 5 A |
| 24 | 6T   | 0    | L  | Z | 0 0 |
| 25 | 2T   | 16   | W  | H | 0 A |
| 26 | 2A   | 12   | Z  | E | 0   |
| 27 | 2LA  | 16   |    |   | A Z |
| 28 | N 2T | 23   | W  | H | 0 A |
| 29 | 7Y   | 1090 | C  | 0 |     |
|    | DC   |      |    |   |     |
|    | DO   |      |    |   |     |

require

put  
cleared Flag word  
FTL

FTL(N)

FTL(LN)

FTL(SID)

FTL(Bswitch)

put

DEFLA

:= in for statement

|    | DA   | O     | W | K | O |                          |
|----|------|-------|---|---|---|--------------------------|
|    | DI   |       |   |   |   |                          |
| 0  | 2A   | 5     |   |   | A |                          |
| 1  | 6T   | 0     | L | F | 0 | NNP                      |
| 2  | 2B   | 7     | Y | E | 3 |                          |
| 3  | 6T   | 0     | K | N | 0 | require                  |
| 4  | N 7Y | 1075  | C | 0 |   |                          |
| 5  | 6T   | 0     | L | Z | 0 | put                      |
| 6  | 2B   | 26    | Z | E | 0 |                          |
| 7  | 2S   | 32767 | X | 0 | B |                          |
| 8  | OLS  | 4     | F | Z | 1 | Bfor on translator list? |
| 9  | N 7Y | 1075  | C | 0 |   |                          |
| 10 | 2B   | 0     |   |   | A |                          |
| 11 | 2S   | 19    |   |   | A |                          |
| 12 | 6T   | 0     | U | E | 0 | FOT(FOR1)                |
| 13 | 6T   | 13    | R | F | 0 | FOT(PRA)                 |
| 14 | 2B   | 0     |   |   | A |                          |
| 15 | 2S   | 48    |   |   | A |                          |
| 16 | 6T   | 0     | U | E | 0 | FOT(PC)                  |
| 17 | 2B   | 6     |   |   | A |                          |
| 18 | 2S   | 0     |   |   | A |                          |
| 19 | 6T   | 0     | U | E | 0 | FOT(N)                   |
| 20 | 2B   | 12    |   |   | A |                          |
| 21 | 6T   | 0     | U | E | 0 | FOT(D12)                 |
| 22 | 2B   | 0     |   |   | A |                          |
| 23 | 2S   | 7     |   |   | A |                          |
| 24 | 6T   | 0     | U | E | 0 | FOT(RR)                  |
| 25 | 6T   | 0     | L | W | 0 | implicit jump            |
| 26 | 2T   | 0     | Z | Y | 0 |                          |
|    | DC   |       |   |   |   |                          |
|    | DO   |       |   |   |   |                          |

PSE(prepare complicated switch element)

|    |       |             |  |
|----|-------|-------------|--|
|    | DA    | O W L O     |  |
|    | DI    |             |  |
| 0  | 2A    | 12 Z E 0    |  |
| 1  | U 2LA | 4096 A Z    |  |
| 2  | Y 2T  | 12 X 0 E    |  |
| 3  | 2B    | 26 Z E 0    |  |
| 4  | 2S    | 32767 X 0 B |  |
| 5  | 1S    | 9 Y E 4 Z   |  |
| 6  | N 2T  | 12 X 0 E    |  |
| 7  | 2LA   | 15 F Z 0 Z  |  |
| 8  | N 5A  | 12 Z E 0    |  |
| 9  | N 6T  | 0 L W 0 3   |  |
| 10 | 2A    | 1 A         |  |
| 11 | N 4A  | 8 Z E 2     |  |
| 12 | 0A    | 11 Z E 0    |  |
| 13 | U 3LA | 31 A Z      |  |
| 14 | Y 6A  | 11 Z E 0    |  |
| 15 | N 7Y  | 1053 C 0    |  |
| 16 | 2T    | 12 X 0 E    |  |
|    | DC    |             |  |
|    | DO    |             |  |

SIFLA

Bswitch on translator list?

PEFLA

implicit jump

element counter

BN

SAP(simple actual parameter)

| DA |       | O W R O |         |     |                           |
|----|-------|---------|---------|-----|---------------------------|
| DI |       |         |         |     |                           |
| 0  | 2S    | 12      | Z E O   |     |                           |
| 1  | U 2LS | 1       |         | A Z |                           |
| 2  | Y 2T  | 21      | W R O A |     | no constant               |
| 3  | 6T    | 0       | L E O 4 |     | PCP for PORD-tail         |
| 4  | 2A    | 12      | Z E O   |     |                           |
| 5  | U 2LA | 4       |         | A Z | IFLA                      |
| 6  | Y 2S  | 15      | Z E O   |     |                           |
| 7  | N 2S  | 16      | E O     |     |                           |
| 8  | 2B    | 8       |         | A   |                           |
| 9  | 6T    | 21      | W F O 2 |     | FOT(integer or first part |
| 10 | N 2T  | 17      | W R O A |     | mantissa)                 |
| 11 | 2A    | 8       | Z E 1 Z |     |                           |
| 12 | N 2S  | 16      | E O     |     |                           |
| 13 | N 6T  | 0       | U E O 2 |     | FOT(tail of mantissa)     |
| 14 | 2S    | 17      | Z E O   |     |                           |
| 15 | 2B    | 7       |         | A P |                           |
| 16 | 6T    | 0       | U E O 2 |     | FOT(exponent)             |
| 17 | 2A    | 7       |         | A   |                           |
| 18 | N 1A  | 1       |         | A P |                           |
| 19 | 6T    | 3       | W S O 3 |     | PORD-head                 |
| 20 | 2T    | 15      | X O E   |     |                           |
| 21 | 2S    | 0       | Z E 1   |     |                           |
| 22 | U 2LS | 9       | F Z O Z |     |                           |
| 23 | Y 2T  | 0       | W R 1 A |     |                           |
| 24 | U 2LS | 17      | F Z O Z |     | non-formal                |
| 25 | Y 7Y  | 1036    | C O     |     |                           |
| 26 | 2A    | 3072    |         | A P |                           |
| 27 | 6T    | 3       | W S O 3 |     | PORD-head                 |
| 28 | 2A    | 1       | Z E 1   |     |                           |
| 29 | 2LA   | 32767   |         | A   |                           |
| 30 | 6T    | 0       | W T O O |     | PORD-tail                 |
| 31 | 2T    | 15      | X O E   |     | exit formal               |

DC  
DO

|    | DA |     | O     | W | R  | 1 |     |
|----|----|-----|-------|---|----|---|-----|
|    | DI |     |       |   |    |   |     |
| 0  | U  | 2LS | 17    | F | Z  | 0 | Z   |
| 1  | N  | 2T  | 26    | W | R  | 0 | A   |
| 2  | U  | 2LS | 15    | F | Z  | 0 | Z   |
| 3  | Y  | 2T  | 17    | W | R  | 1 | A   |
| 4  |    | 2A  | 1     | Z | E  | 1 |     |
| 5  |    | 1P  | 16    |   | SA |   |     |
| 6  |    | OP  | 15    |   | AS |   |     |
| 7  |    | 2LA | 14    | Y | E  | 4 |     |
| 8  | U  | 2LS | 0     | F | Z  | 0 | Z   |
| 9  | N  | 3LA | 31744 |   |    |   | A   |
| 10 |    | 6T  | 4     | W | T  | 0 | O   |
| 11 | U  | 2LS | 14    | F | Z  | 0 | Z   |
| 12 |    | 2A  | 800   |   |    |   | A   |
| 13 | N  | 2A  | 548   |   |    |   | A   |
| 14 | N  | 2LS | 19    | F | Z  | 0 | Z   |
| 15 | N  | OA  | 1     |   |    |   | A P |
| 16 |    | 2T  | 19    | W | R  | 0 | A   |
| 17 | U  | 2LS | 5     | F | Z  | 0 | Z   |
| 18 | Y  | 2T  | 30    | W | R  | 1 | A   |
| 19 |    | 2A  | 1     | Z | E  | 1 |     |
| 20 |    | 1P  | 16    |   | SA |   |     |
| 21 |    | OP  | 15    |   | AS |   |     |
| 22 | U  | 2LA | 2     | F | Z  | 1 | Z   |
| 23 |    | 2LA | 14    | Y | E  | 4 |     |
| 24 |    | 6T  | 2     | W | T  | 0 | O   |
| 25 |    | 2A  | 1032  |   |    |   | A   |
| 26 | N  | OA  | 1024  |   |    |   | A   |
| 27 | U  | 2LS | 19    | F | Z  | 0 | Z   |
| 28 | N  | OA  | 1     |   |    |   | A P |
| 29 |    | 2T  | 19    | W | R  | 0 | A   |
| 30 | U  | 2LS | 18    | F | Z  | 0 | Z   |
| 31 | Y  | 2T  | 5     | W | R  | 2 | A   |

DC  
DO

non-formal ?

non-procedure ?

PORD-tail

non-array ?

PORD-tail

non-switch ?

DA O W R 2  
DI  
0 2A 1 Z E 1  
1 2LA 32767 A  
2 6T 0 W T 0 O  
3 2A 1040 A P  
4 2T 19 W R 0 A  
5 U 2LS 2 F Z 1 Z  
6 Y 2T 12 W R 2 A  
7 2A 1 Z E 1  
8 2LA 32767 A  
9 6T 0 W T 0 O  
10 2A 1088 A P  
11 2T 19 W R 0 A  
12 2A 1 Z E 1  
13 U 2LA 14 F Z 0 Z  
14 2LA 32767 A  
15 6T 0 W T 0 O  
16 2A 1024 A  
17 2T 26 W R 1 A  
DC  
DO

PORD-tail

non-label?

PORD-tail

TAP(translate actual parameter)

|    |       |             |     |
|----|-------|-------------|-----|
|    | DA    | O W S O     |     |
|    | DI    |             |     |
| 0  | 2B    | 1           | A   |
| 1  | 5B    | 26 Z E 0    |     |
| 2  | U OLA | 128         | A Z |
| 3  | 2B    | 26 Z E 0    |     |
| 4  | 6A    | 32762 X 0 B |     |
| 5  | 2S    | 31 Y E 0    |     |
| 6  | 4S    | 32762 X 0 B |     |
| 7  | N 2B  | 0           | A   |
| 8  | N 2S  | 4           | A   |
| 9  | N 6T  | 21 W F 0 2  |     |
| 10 | 2T    | 11 X 0      | E   |
| 11 | 2B    | 26 Z E 0    |     |
| 12 | 2S    | 32767 X 0 B |     |
| 13 | U OLS | 21 Y E 0    | Z   |
| 14 | Y 2A  | 12 Z E 0    |     |
| 15 | Y 2LA | 2048        | A Z |
| 16 | Y 2T  | 0 W R 0 A   |     |
| 17 | U OLS | 14 Y E 1    | Z   |
| 18 | Y 3S  | 12 Z E 0    |     |
| 19 | Y 2LS | 18 F Z 0    | Z   |
| 20 | Y 2A  | 512         | A   |
| 21 | Y 6T  | 0 W S 0 3   |     |
| 22 | 2A    | 0           | A   |
| 23 | 6T    | 0 L F 0 5   |     |
| 24 | 6T    | 0 R F 0 6   |     |
| 25 | Y 2T  | 15 X 0      | E   |
| 26 | 2B    | 26 Z E 0    |     |
| 27 | 2S    | 32767 X 0 B |     |
| 28 | OLS   | 2 Y E 3     | Z   |
| 29 | Y 2A  | 128         | A   |
| 30 | Y 6T  | 8 W S 1 3   |     |
| 31 | Y 2T  | 15 X 0      | E   |
|    | DC    |             |     |
|    | DO    |             |     |

store PORD-head in  
translator list

FOT(EIS)

B(actpar on translator  
list ?

LEFLA  
the simple case  
ITAR on translator list?

PIFLA

PORD-head

NNP  
conditional expressions  
exit subscript expression

Bstrq on translator list ?

exit string

|    |       |           |     |
|----|-------|-----------|-----|
|    | DA    | O W S 1   |     |
|    | DI    |           |     |
| 0  | 2S    | 12 Z E O  |     |
| 1  | U 2LS | 16        | A Z |
| 2  | N 2A  | 576       | A   |
| 3  | N 6T  | 4 W S O 3 |     |
| 4  | N 2T  | 15 X O    | E   |
| 5  | 2A    | 516       | A Z |
| 6  | N 6T  | 3 W S O 3 |     |
| 7  | 2T    | 15 X O    | E   |
| 8  | 2B    | 1         | A   |
| 9  | 5B    | 11 Z E O  |     |
| 10 | 2T    | 0 W S O A |     |
|    | DC    |           |     |
|    | DO    |           |     |

DEFLA

exit designational  
expression

TPW(tail of parameter word)  
stores tail of parameter word (PORD) in translator list

|   |    |             |         |
|---|----|-------------|---------|
|   | DA | O W T O     |         |
|   | DI |             |         |
| 0 | OA | 10 Y E 4    | DA      |
| 1 | 2T | 5 W T O A   |         |
| 2 | OA | 11 Y E 4    | DA + N  |
| 3 | 2T | 5 W T O A   |         |
| 4 | OA | 12 Y E 4    | NAP + N |
| 5 | 2B | 26 Z E O    |         |
| 6 | 6A | 32761 X O B |         |
| 7 | 2T | 8 X O E     |         |
|   | DC |             |         |
|   | DO |             |         |

FNC II (fill name code arrays)

|    | DA   | O     | W  | W | O     |                   |
|----|------|-------|----|---|-------|-------------------|
|    | DI   |       |    |   |       |                   |
| 0  | 2S   | 9     | Z  | E | 2     | array counter     |
| 1  | 6S   | 0     | X  | 0 |       |                   |
| 2  | 2S   | 10    | E  | 2 |       | dimension counter |
| 3  | 2P   | 16    | SS |   |       |                   |
| 4  | 2A   | 12    | E  | 0 |       |                   |
| 5  | 2LA  | 256   |    |   | A Z   | WOFLA             |
| 6  | N 6T | 18    | W  | W | 0 0   |                   |
| 7  | Y OS | 21    | Z  | E | 1     | 99                |
| 8  | 2B   | 19    | E  | 0 |       |                   |
| 9  | 2A   | 32767 | X  | 0 | B     |                   |
| 10 | 2LA  | 32767 |    |   | A     |                   |
| 11 | 1S   | 11    | E  | 2 |       |                   |
| 12 | 4S   | 32766 | X  | 0 | B     |                   |
| 13 | 6A   | 12    | E  | 2 |       |                   |
| 14 | 1B   | 12    | E  | 2 |       |                   |
| 15 | 4T   | 9     | W  | W | 0 0 P |                   |
| 16 | 2T   | 9     | X  | 0 | E     |                   |
| 17 | 2S   | 0     |    |   | A     |                   |
| 18 | OS   | 23    | Z  | E | 1     | ss                |
| 19 | OS   | 10    | E  | 2 |       | dimensions        |
| 20 | OS   | 2     |    |   | A     |                   |
| 21 | 2T   | 8     | X  | 0 | E     |                   |
|    | DC   |       |    |   |       |                   |
|    | DO   |       |    |   |       |                   |

FOT(fill object tape)  
 B= type specifier  
 S= element offered for output

|    | DA   | O  | U  | E | O   |                  |
|----|------|----|----|---|-----|------------------|
|    | DI   |    |    |   |     |                  |
| 0  | U 2A | 3  | D  | 0 | P   |                  |
| 1  | 6A   | 5  | Z  | 0 |     |                  |
| 2  | 6S   | 6  | Z  | 0 |     |                  |
| 3  | 6T   | 13 | F  | 0 | O   |                  |
| 4  | N 2T | 28 | E  | 0 | A   | skip punching    |
| 5  | 2S   | 0  | Z  | 0 | Z   |                  |
| 6  | N 2T | 16 | E  | 0 | A   |                  |
| 7  | OA   | 13 | Z  | 0 |     |                  |
| 8  | U 1A | 26 |    |   | A P |                  |
| 9  | N 6A | 13 | Z  | 0 |     |                  |
| 10 | N 2T | 16 | E  | 0 | A   |                  |
| 11 | 1A   | 27 |    |   | A   |                  |
| 12 | 6A   | 13 | Z  | 0 | P   |                  |
| 13 | N 7A | 13 | Z  | 0 | P   |                  |
| 14 | Y 2A | 1  |    |   | A   |                  |
| 15 | Y 4A | 12 | Z  | 0 |     |                  |
| 16 | U 1B | 14 | Z  | 0 | Z   | same directive ? |
| 17 | N 3A | 14 | Z  | 0 | P   |                  |
| 18 | 6B   | 14 | Z  | 0 |     |                  |
| 19 | N 5P |    | AA |   |     |                  |
| 20 | N 2B | 5  |    |   | A   |                  |
| 21 | N 6T | 0  | H  | 0 | 1   | insert directive |
| 22 | 2B   | 7  | Z  | 0 |     |                  |
| 23 | 1B   | 11 |    |   | A P |                  |
| 24 | Y 4B | 14 | Z  | 0 |     | change D12       |
| 25 | N 2B | 11 | F  | 0 | B   |                  |
| 26 | N 2A | 6  | Z  | 0 |     |                  |
| 27 | N 6T | 21 | H  | 1 | 1   | AIB              |
| 28 | 2A   | 5  | Z  | 0 |     |                  |
| 29 | 2S   | 6  | Z  | 0 |     |                  |
| 30 | 2B   | 7  | Z  | 0 |     |                  |
| 31 | 2T   | 10 | X  | 0 | E   |                  |
|    | DC   |    |    |   |     |                  |
|    | DO   |    |    |   |     |                  |

constants of output program

|    | DA        | O | U | F | O | bits in   | bits on |                    |
|----|-----------|---|---|---|---|-----------|---------|--------------------|
|    | DN        |   |   |   |   | obj.prog. | tape    |                    |
| 0  | +7340040  |   |   |   |   | 7         | 8       | macro-order        |
| 1  | +15728656 |   |   |   |   | 15        | 16      | DA or BI           |
| 2  | +20971531 |   |   |   |   | 20        | 11      | NAP                |
| 3  | +22020112 |   |   |   |   | 21        | 16      | PDA                |
| 4  | +22020117 |   |   |   |   | 21        | 21      | PRA                |
| 5  | +10485771 |   |   |   |   | 10        | 11      | LN                 |
| 6  | +5242886  |   |   |   |   | 5         | 6       | N                  |
| 7  | +12582925 |   |   |   |   | 12        | 13      | PORD-head or char. |
| 8  | +28311580 |   |   |   |   | 27        | 27      | integer or mant.   |
| 9  | +7340040  |   |   |   |   | 7         | 8       | string symbol      |
| 10 | +11       |   |   |   |   | 0         | 11      | APC                |
| 11 | +21       |   |   |   |   | 0         | 21      | element of address |
| 12 | +20971520 |   |   |   |   | 20        | 0       | D12 pile           |
|    | DC        |   |   |   |   |           |         |                    |
|    | DO        |   |   |   |   |           |         |                    |

insertion in FOT

|    |      |    |   |    |   |     |
|----|------|----|---|----|---|-----|
|    | DA   | 13 | U | F  | O |     |
|    | DI   |    |   |    |   |     |
| 13 | 2A   | 1  |   |    |   | A   |
| 14 | U 1B | 12 |   |    |   | A Z |
| 15 | Y 4A | 12 | Z | E  | 1 |     |
| 16 | U 1B | 11 |   |    |   | A Z |
| 17 | Y 5A | 12 | Z | E  | 1 |     |
| 18 | 6B   | 7  | U | Z  | O |     |
| 19 | 2A   | 0  |   | F  | O | B   |
| 20 | 3P   | 20 |   | AA |   |     |
| 21 | 2T   | 8  | X | O  |   | E   |
|    | DC   |    |   |    |   |     |
|    | DO   |    |   |    |   |     |

AIB( add imparity bit)  
A= output unit offered  
B= number of bits of output unit

|    | DA    | O  | U | H   | O   |
|----|-------|----|---|-----|-----|
|    | DI    |    |   |     |     |
| 0  | 2S    | 8  |   | Z   | 0   |
| 1  | U 1B  | 27 |   |     | A P |
| 2  | N 6Z  | 31 |   | X   | 0 B |
| 3  | N 6S  | 0  |   | X   | 1   |
| 4  | N 0A  | 0  |   | X   | 1   |
| 5  | N 2S  | 0  |   |     | A   |
| 6  | U 1B  | 5  |   |     | A Z |
| 7  | Y 0S  | 0  |   | D15 |     |
| 8  | 0B    | 9  |   | Z   | 0   |
| 9  | 6B    | 9  |   | Z   | 0   |
| 10 | 1B    | 28 |   |     | A   |
| 11 | 6S    | 4  |   | X   | 1   |
| 12 | 7B    | 3  |   | X   | 1   |
| 13 | 2S    | 11 |   | Z   | 0   |
| 14 | 1S    | 5  |   |     | A Z |
| 15 | Y 7S  | 11 |   | Z   | 0   |
| 16 | Y 2B  | 4  |   |     | A   |
| 17 | N 2B  | 5  |   |     | A   |
| 18 | N 2S  | 1  |   |     | A   |
| 19 | N 4S  | 11 |   | Z   | 0   |
| 20 | 5B    | 9  |   | Z   | 0   |
| 21 | 0B    | 3  |   | X   | 1   |
| 22 | 2S    | 4  |   | X   | 1   |
| 23 | 0P    | 0  |   | SA  | B   |
| 24 | 6S    | 3  |   | X   | 1   |
| 25 | 0LS   | 10 |   | Z   | 0   |
| 26 | 6S    | 10 |   | Z   | 0   |
| 27 | N 2S  | 3  |   | X   | 1   |
| 28 | N 2T  | 7  |   | H   | 1 A |
| 29 | U 2LS | 16 |   |     | A Z |
| 30 | N 0LS | 17 |   |     | A   |
| 31 | 4P    |    |   | SB  |     |
|    | DC    |    |   |     |     |
|    | DO    |    |   |     |     |

|    | DA   |       | O   | U | H | 1 |                     |
|----|------|-------|-----|---|---|---|---------------------|
|    | DI   |       |     |   |   |   |                     |
| 0  | 2S   | 27030 |     |   |   |   | A                   |
| 1  | 1P   | 1     | SS  |   |   |   | B P                 |
| 2  | 2S   | 3     | X   | 1 |   |   |                     |
| 3  | Y OS | 0     | D15 |   |   |   | make impair         |
| 4  | OP   | 1     | SS  |   |   |   |                     |
| 5  | 2B   | 0     |     |   |   |   | A                   |
| 6  | 6B   | 10    | Z   | 0 |   |   | erase parity pentad |
| 7  | 6A   | 3     | X   | 1 |   |   |                     |
| 8  | 6T   | 0     | K   | 0 | 0 |   | AOB                 |
| 9  | 2A   | 3     | X   | 1 |   |   |                     |
| 10 | 2B   | 0     |     |   |   |   | A                   |
| 11 | 6B   | 4     | X   | 1 |   |   |                     |
| 12 | 2S   | 9     | Z   | 0 |   |   |                     |
| 13 | 1S   | 4     |     |   |   |   | A P                 |
| 14 | N OS | 11    | Z   | 0 |   |   |                     |
| 15 | N 1S | 5     |     |   |   |   | A Z                 |
| 16 | Y 2T | 12    | H   | 0 | A |   |                     |
| 17 | 2B   | 9     | Z   | 0 |   |   |                     |
| 18 | OP   | 0     | AA  |   | B |   |                     |
| 19 | 6A   | 8     | Z   | 0 |   |   |                     |
| 20 | 2T   | 9     | X   | 0 |   | E |                     |
| 21 | 4P   |       | AS  |   |   |   |                     |
| 22 | 7Z   | 31    | X   | 0 | B | Z |                     |
| 23 | Y 2T | 0     | U   | H | 0 | A |                     |
| 24 | 7Y   | 1036  | C   | 0 |   |   |                     |
|    | DC   |       |     |   |   |   |                     |
|    | DO   |       |     |   |   |   |                     |

AOB(administration output buffer)

| DA |      | O U K O |       |   |  |                                              |
|----|------|---------|-------|---|--|----------------------------------------------|
| DI |      |         |       |   |  |                                              |
| 0  | 2A   | 0       | Z 0   | P |  | initial state ?                              |
| 1  | Y 2B | 5       |       | A |  |                                              |
| 2  | Y 7A | 0       | Z 0   |   |  |                                              |
| 3  | Y 6A | 1       | Z 0   |   |  |                                              |
| 4  | Y 7B | 2       | Z 0   |   |  |                                              |
| 5  | Y 6A | 3       | Z 0   |   |  |                                              |
| 6  | Y 6B | 4       | Z 0   |   |  |                                              |
| 7  | 2B   | 4       | Z 0   |   |  |                                              |
| 8  | U 1B | 2       | Z 0   | Z |  |                                              |
| 9  | Y 2A | 3       | Z 0   |   |  |                                              |
| 10 | Y 1A | 1       | Z 0   | Z |  |                                              |
| 11 | Y 2T | 7       | K 0   | A |  | wait, no more space left in<br>output buffer |
| 12 | 2A   | 31      |       | A |  |                                              |
| 13 | 6Z   | 27      | X 2   | B |  |                                              |
| 14 | 2B   | 3       | Z 0   |   |  |                                              |
| 15 | 2LA  | 0       | L 0   | B |  | filling buffer                               |
| 16 | 5A   | 0       | L 0   | B |  |                                              |
| 17 | 4S   | 0       | L 0   | B |  |                                              |
| 18 | 2B   | 3       | Z 0   | A |  |                                              |
| 19 | OY   | 64      | X24   |   |  |                                              |
| 20 | 6T   | 10      | K 114 |   |  | cyclical counter                             |
| 21 | U 2A | 2       | Z 0   | P |  |                                              |
| 22 | Y 2T | 8       | X 0   | E |  |                                              |
| 23 | 6A   | 1       | Z 0   |   |  |                                              |
| 24 | 6S   | 2       | Z 0   |   |  |                                              |
| 25 | 2A   | 8       | X 0   |   |  |                                              |
| 26 | 6T   | 8       | D 114 |   |  | standard entrance type-punch<br>program      |
| 27 | 2B   | 1       | Z 0   |   |  |                                              |
| 28 | 2S   | 0       | L 0   | B |  |                                              |
| 29 | 2B   | 2       | Z 0   |   |  |                                              |
| 30 | 7Z   | 27      | X 0   | B |  |                                              |
| 31 | 6T   | 15      | D 114 |   |  | TPWW                                         |

DC  
DO

|    | DA    | O  | U | K     | 1   |   |
|----|-------|----|---|-------|-----|---|
|    | DI    |    |   |       |     |   |
| 0  | 6Z    | 1  |   | X16   |     |   |
| 1  | 2B    | 1  |   | Z 0 A |     |   |
| 2  | 6T    | 10 |   | K 114 |     |   |
| 3  | 2A    | 1  |   | Z 0   |     |   |
| 4  | 2S    | 2  |   | Z 0   |     |   |
| 5  | U 1S  | 4  |   | Z 0   |     | Z |
| 6  | Y 1A  | 3  |   | Z 0   |     | Z |
| 7  | N 2T  | 27 |   | K 0 A |     |   |
| 8  | 7S    | 2  |   | Z 0   |     |   |
| 9  | 2T    | 13 |   | D 1 A |     |   |
| 10 | 2A    | 1  |   | X 0 B |     |   |
| 11 | 6A    | 15 |   | Z 0   |     |   |
| 12 | U 1A  | 20 |   |       | A P |   |
| 13 | N 0A  | 5  |   |       | A   |   |
| 14 | Y 2A  | 5  |   |       | A   |   |
| 15 | 6A    | 1  |   | X 0 B |     |   |
| 16 | 2S    | 0  |   | X 0 B |     |   |
| 17 | 4P    |    |   | SA    |     |   |
| 18 | Y 0S  | 1  |   |       | A   |   |
| 19 | Y 2LS | 31 |   |       | A   |   |
| 20 | Y 6S  | 0  |   | X 0 B |     |   |
| 21 | 2S    | 15 |   | Z 0   |     |   |
| 22 | 2T    | 22 |   | X 0   | E   |   |
|    | DC    |    |   |       |     |   |
|    | DO    |    |   |       |     |   |

cyclical counter

standard exit

punch end of object tape

|    | DA   |    | O | U | R   | O |     |
|----|------|----|---|---|-----|---|-----|
|    | DI   |    |   |   |     |   |     |
| 0  | 2S   | 13 |   |   | Z   | 0 |     |
| 1  | OP   | 15 |   |   | SS  |   |     |
| 2  | OS   | 12 |   |   | Z   | 0 |     |
| 3  | 2B   | 11 |   |   |     |   | A   |
| 4  | 6T   | 0  |   |   | E   | 0 | 2   |
| 5  | 2B   | 12 |   |   |     |   | A   |
| 6  | 6T   | 0  |   |   | E   | 0 | 2   |
| 7  | 2S   | 11 |   |   | Z   | 0 | Z   |
| 8  | N 1S | 6  |   |   |     |   | A   |
| 9  | 3X   | 5  |   |   |     |   | A   |
| 10 | 1S   | 9  |   |   | Z   | 0 | Z   |
| 11 | Y 2S | 31 |   |   |     |   | A   |
| 12 | Y 2T | 28 |   |   | R   | 0 | A   |
| 13 | 4P   |    |   |   | SB  |   | P   |
| 14 | N 0B | 30 |   |   |     |   | A   |
| 15 | 1B   | 1  |   |   |     |   | A Z |
| 16 | N 2S | 0  |   |   | D15 |   |     |
| 17 | Y 2S | 0  |   |   |     |   | A   |
| 18 | 2A   | 0  |   |   |     |   | A   |
| 19 | N 7Z | 1- |   |   | X   | 3 | B   |
| 20 | 0A   | 8  |   |   | Z   | 0 |     |
| 21 | N OP | 0  |   |   | SA  |   | B   |
| 22 | 6B   | 6  |   |   | X   | 1 |     |
| 23 | 0B   | 9  |   |   | Z   | 0 |     |
| 24 | 6B   | 9  |   |   | Z   | 0 |     |
| 25 | 1B   | 27 |   |   |     |   | A   |
| 26 | 6T   | 11 |   |   | H   | 0 | 1   |
| 27 | 2S   | 6  |   |   | X   | 1 |     |
| 28 | 6T   | 0  |   |   | K   | 0 | 0   |
| 29 | 6T   | 0  | R |   | U   | 0 | 1   |
| 30 | 2T   | 11 |   |   | X   | 0 | E   |
|    | DC   |    |   |   |     |   |     |
|    | DO   |    |   |   |     |   |     |

FOT(address of object program)

FOT(concluding directive)  
pentad counter

AIB( concluding ones)

AOB( number of concluding ones )  
punch tape feed

DA    O Y Z O  
DU  
0 +1101011111101111111111111  
1 +1000000000000000000000000  
2 +1010000000010000000000000  
3 +0  
4 +101110111111011111111000  
5 +1000  
6 +10000000100000000000  
7 +10000000000000000000  
8 +10111111101111111111111  
9 +10010  
10 +1000000000000000  
11 +0  
12 +100000000000000001  
DC  
DO

DA O Y E O  
DU  
0 +110111111111111111111111111111  
1 +1000000000010000000000000000  
2 +1010000000000000000000000000  
3 +1000000000000000000000000000  
4 +1000000000000000000000000000  
5 +1011111111111111110111111111  
6 +0  
7 +1110000000000000000000000000  
8 +1100000000000000000000000000  
9 +111111110111111000011111  
10 +0  
11 +1110000000000000000000000000  
12 +1100000000000000000000000000  
13 +1111111111111111111111111111  
14 +1000000000000000000000000000  
15 +1010000000000000000000000000  
16 +1000000000000000000000000000  
17 +11111111011111100011111  
18 +0  
19 +1110000000000000000000000000  
20 +1000000000000000000000000000  
21 +1000000000000000000000000100  
22 +100000000101111111110010  
23 +10  
24 +1011111000010000000000000000  
25 +1101000000000000000000000000  
26 +1111111110111111111111111111  
27 +100000000100000000000000010  
28 +1011111111011111111111111111  
29 +100000000000000000000000010  
30 +10000000000000000000000001  
31 +1110000000000000000000000000  
DC  
DO

DA O Y E 1

DU

0 +1000000000000000000001111  
1 +10000000000000000000010000  
2 +10111111111000000100000010  
3 +100000000000000000000010  
4 +11111111111111111100000000  
5 +100000000100000000000000  
6 +111111111111111111000011111  
7 +1100000000000000000000010  
8 +11111111111011111111111111  
9 +10000000000000000000000000  
10 +11011100001110011111100000  
11 +0  
12 +1000100000001000000000000  
13 +1000000000001000000000000  
14 +11101000000000100110  
15 +1011101111011011111110011  
16 +10  
17 +10100010000100100000000000  
18 +100000000000000000000000  
19 +10000000000000000000000110  
20 +11000000001110011111100000  
21 +0  
22 +1111100001000000000000000  
23 +100000000000000000000000  
24 +11111111100000  
25 +11111111111011111111111111  
26 +10100000000000000000000000  
27 +11111111111011111100010010  
28 +1000000000000000000000010  
29 +10011111111011111111111111  
30 +10000000000000000000000101  
31 +1001100000001000000000000

DC

DO

DA O Y E 2

DU

0 +10000000000000000000  
1 +11010000000000000000  
2 +110001100011101111111111  
3 +10000000000000000000  
4 +1100000000001000011  
5 +11000000001110011111111000  
6 +0  
7 +100110000000100000000000  
8 +10000000000000000000  
9 +111111011101111111111111  
10 +0  
11 +10000011000100000000000000  
12 +10000000000000000000  
13 +100100001110111111111111  
14 +0  
15 +1000000000000000000001110  
16 +1000000000000000000001101  
17 +11001000001110011111111000  
18 +0  
19 +100110000000100000000000  
20 +100010000000000000000000  
21 +1001000001110011111100000  
22 +0  
23 +10100010000000100000000000  
24 +0  
25 +11111000000000000000000000  
26 +1111100000000000000000  
27 +1111000000000000000000  
28 +11010000001111011111100000  
29 +100000000000000000000000  
30 +110101111111111111111111  
31 +100100000000000000000000

DC

DO

DA 0 Y E 3  
DU  
0 +100010000000100000000000  
1 +100000000000100000000000  
2 +1000000000000000000010001  
3 +1101111111101111111111111  
4 +1000000000000000000000000  
5 +1000010001000000000000000  
6 +1000010000000000000000000  
7 +11111110111111011111111011  
8 +1010000000000000000001010  
9 +1010001000000010000000000  
10 +1000000000000000000000000  
11 +11011101001111011111110000  
12 +1000000000000000000000000  
13 +10100011000000100000000000  
14 +1010000000000000000000000  
15 +1000000000000000000000000  
16 +1000000000000000000000000  
17 +10100010000100100000000000  
18 +1000000000001000000000000  
19 +1101110111111101111111000  
20 +10000000000000001000  
21 +1000100100001000000000000  
22 +1001000000000000000000000  
23 +1101110111111101111111000  
24 +1010000000000001000  
25 +1000100000001000000000000  
26 +1000000000000000000000000  
27 +1101110111111101111111000  
28 +10000000000000001000  
29 +1000101000001000000000000  
30 +1010000000000000000000000  
31 +11011101001111011111110000  
DC  
DO

DA O Y E 4  
DU  
0 +10000000000000000000  
1 +100010110000100000000000  
2 +10000000000000000000  
3 +111010000000000000000000  
4 +111111111111111111111111  
5 +100000000001000000010010  
6 +101010000000100000000000  
7 +1010000000000000000000  
8 +111010000000000001100  
9 +1000000000000000000010010  
10 +110100000000000000000000  
11 +111000000000000000000000  
12 +111100000000000000000000  
13 +110000000000000000000000  
14 +111111111111111111111111  
15 +110000000000000000000001  
16 +11000000001111011111100000  
17 +0  
18 +100110000000100000000000  
19 +1000000000000000000000  
20 +1111101111111101000000011  
21 +1100000000000000000000010  
22 +111110111111110100001111  
23 +1100000000000100000000000  
24 +11111111111111111111111111  
25 +10000010000000000000000000  
26 +11111111111111111111111111  
27 +100000000000000000000000  
28 +1011101111110001111111000  
29 +1000  
30 +10111000000000000000000000  
31 +10010000000000000000000000  
DC  
DO

DA 0 Y E 5

DU

0 +100000000000000000000000000000000

1 + 0

2 +1100000000000000000000000001

3 +1010000000000000000000000001

4 +1 0001 000000001 000000000000

5 +1000000000000000000000000

6 +1 00000000000000000000000000

7 + 0

DC

DO

DA 16 Y E 5

DI

16 U 1A 87 A Z

17 N 2T 21 Y E 5 A

18 U 1S 4 Z E 1 Z

19 Y 5S 3 Z E 1

20 2T 19 Z U11 A

21 U 1A 101 A Z

22 Y 5S 4 Z E 1 Z

23 N 2T 19 Z U11 A

24 2S 3 Z E 1 Z

25 N 7Y 1034 C 0

26 2T 0 Z U12 A

DC

DO

DS

insertion in prescan  
program

### 3. Contents of working space

- 0 ZEO state of reading routines; 0  $\equiv$  initial
- 1 case definition of Flexowriter
- 2 LC (line counter)
- 3 QC (string quote counter)
- 4 stock of NAS
- 5 CFIA (comment flag); 0  $\equiv$  comment allowed
- 6
- 7 stock of NRS
- 8 last relevant symbol read
- 9 BEC (begin - end counter)
- 10 priority number
- 11 OBC or BN; counts block level
- 12 Flag word
- 13 SC (symbol counter)
- 14 DECFLA (declaration flag during prescan)
- 15 FNW (facultative number word; head of mantissa)
- 16 INW (imperative number word; integer or tail mantissa)
- 17 exponent
- 18
- 19 NLSC (name list counter)
- 20 TNLSC (temporary NLSC)
- 21
- 22 INLSC (initial NLSC)
- 23 PLIB (begin of prescan list)
- 24
- 25 PLIE (end of prescan list)
- 26 TLSC (translator list counter)
- 27 BAP (begin address pile)
- 28 BFLA (procedure heading flag during prescan)
- 29 ITLSC (initial TLSC)
- 30 BC (block counter; counts total number of blocks)
- 31 ZEO T' (last 5 bits of Flagword, in stock)

0 ZE1 name code I  
1 name code II  
2  
3 round bracket counter  
4 square bracket counter  
5 sum check of relevant symbols  
6 LPSL (length of prestack list)  
7  
8 if 0 then produce ALP-program  
9 own-flag  
10 dimension counter  
11 real, integer or Boolean function  
12 APC (address pile counter)  
13 if 0 then skip priority test in backward scanning  
14  
15  
16 NID (address of Name code I of IDentifier in name list)  
17  
18 LN for LAD or for SID  
19 pp (LN of formals)  
20  
21 qq (LN of non-own local variables or storage functions)  
22 rr (LN of own variables)  
23 ss (LN of own arrays)  
24 ppp (address in prestack list, relative to PSLB)  
25 PSLB (begin of prestack list)  
26 PPP (address of new block in prestack list, relative to PSLB)  
27 AA (length of storage for non-own local variables and storage  
functions)  
28 BB (length of storage for own variables)  
29 CC (length of storage for own storage functions)  
30 DD (number of labels)  
31 ZE1 EE (number of switches + 2 \* total number of switch elements)

0 ZE2 FF (number of own arrays in block)

1

2

3

4

5

6

7 string quote counter

8 switch element counter

9 array counter

10 ZE2 dimension counter

0 UZO state of output routines (0≡initial)

1 ] cyclical counter for

2 ] emptying buffer

3 ] cyclical counter for

4 ] filling buffer

5 contents of A-register before FOT

6 " " S- " " "

7 " " B- " " "

8 partial pentad

9 number of bits of partial pentad

10 parity pentad

11 pentad counter

12 physical address of PRA

13 bit number of PRA

14 UZO controlling directive

4.

4.1. Adaptation to other installations

The following paragraph definitions at the beginning of the tape are installation-dependent (see page 1):

|      |       |                                         |
|------|-------|-----------------------------------------|
| DPEZ | m1 XO | m1 = (27D16) + 87                       |
| DPES | m2 XO | m2 = (27D16)                            |
| DPET | m3 XO | m3 = number of X1-words in living store |

4.2. Punching a binary tape

The standard tape consists of the translator program text published in this report, followed by a copy of P74 (read binary tape fast) located in OX1 - 3OX1.

After reading in the standard tape the start address, the stop address and the console word switches are given the following sets of values:

|    | (1D0) :=    | (2D0) := | (3D0) := |
|----|-------------|----------|----------|
| 1. | OX1         | 31       | 15       |
| 2. | 25X0        | 1        | 12       |
| 3. | (27D16)+13  | 13       | 12       |
| 4. | 23X2        | 2        | 12       |
| 5. | (27D16)+167 | 4341     | 62       |

After every setting of the switches, give autostart 9.

## 5. Adding names of standard functions and machine code procedures

The translating system may be extended by adding new machine code procedures to the complex tape. Because these procedures need not be explicitly declared, the fixed contents of name list and address pile have to be duly supplemented as follows:

1. Choose a free paragraph name for the new procedure. As is well known, by means of the thirteen letters Z,E,F,H,K,L,R,S,T,W,U,Y and N 169 ordered letter pairs can be formed, from ZZ to NN, and one of the numbers 1(1)169 is associated to each of them in an obvious way.

At the time of writing the paragraph names ZZ,.....,TF have been used for other purposes, so TH is the first free name. Its associated number nO is 107.

We now define  $n1(TH) = nO - 65 = 42$ .

The fixed contents of the address pile are now supplemented by adding a correction tape to the standard translator tape:

```
DPRZ  4398 EZO
      DA   nO RZO DI
      OA   n1 ESO
      DCDO
```

2. Calculate the quantities R and Q for the name code.

These are binary numbers, the bits of which are numbered from right to left  $R_0, \dots, R_3$  and  $Q_0, \dots, Q_9$ .

$R_0 :=$  if function procedure then 1 else 0

$R_1 := R_2 := R_3 := 0$  for all procedures

$Q_0 :=$  if real procedure then 1 else 0

$Q_1 := Q_5 := Q_4 := Q_6 := Q_7 := Q_9 := 0$  for all procedures considered here.

$Q_2 :=$  if real procedure V integer procedure then 1 else 0.

$Q_8 = 1$

$Q_8 = R_0$

Another quantity  $n_2$  is defined by

$n_2 :=$  if number of formal parameters is undefined  
           then 16  
           else number of formal parameters modulo 16

The internal representation of basic ALGOL symbols is chosen in such a way, that symbols occurring in identifiers are represented by 6-bit numbers. Of these letters and digits at most four are shifted from left to right into an X1-word. The remaining 3 or 9 or 15 or 21 bits are filled up with ones. E.g.: the letters of ABSFIXT are stored as follows

|                   |   |   |   |         |     |
|-------------------|---|---|---|---------|-----|
| first name word:  | F | S | B | A       | 111 |
| second name word: | T | X | I | 1 11111 | 111 |

name code I = number of name words  $+2 + 2 \uparrow 16 * Q$

name code II =  $n_1 + 2 \uparrow 16 * n_2 + 2 \uparrow 22 * R$

$n_3$  = previous paragraph definition of ER

$n_4$  = previous paragraph definition of EL

The correction tape for the name list has the following form:

```

DPLN 4462 EZO
DA n3 LNO DN
"first name word"
"second name word"
.....
"last name word"
name code II
name code I
DCDO

```

3. Among the first paragraph definitions of the name list the definitions of EL and ER have to be changed.

$n3 := n3 + \text{number of name words} + 2$

$n4 := n4 + 1$

DPER n3 X0

DPEL n4 X0

4. In general, it will not be necessary to change other paragraph definitions. In paragraph RZ 22 X1-words have been left open for adding new addresses and in paragraph LN 43 X1-words have been left open for name words and name codes.

5. After these corrections of the standard translator tape a new binary tape will have to be made. In the fifth set of switch values at the time of writing (2DO) was 4341. But now

$(2DO) := \text{previous value of } (2DO) + \text{number of name words} + 2.$

6. Internal representation of ALGOL 60 basic symbols

| <u>symbol</u> | <u>code</u> | <u>symbol</u> | <u>code</u> | <u>symbol</u> | <u>code</u> | <u>symbol</u>    | <u>code</u> |
|---------------|-------------|---------------|-------------|---------------|-------------|------------------|-------------|
| 0             | 0           | w             | 32          | +             | 64          | <u>while</u>     | 96          |
| 1             | 1           | x             | 33          | -             | 65          | <u>comment</u>   | 97          |
| 2             | 2           | y             | 34          | x             | 66          | (                | 98          |
| 3             | 3           | z             | 35          | /             | 67          | )                | 99          |
| 4             | 4           |               |             | ÷             | 68          | [                | 100         |
| 5             | 5           | A             | 37          | ↑             | 69          | ]                | 101         |
| 6             | 6           | B             | 38          | >             | 70          | '                | 102         |
| 7             | 7           | C             | 39          | »             | 71          | ,                | 103         |
| 8             | 8           | D             | 40          | =             | 72          | <u>begin</u>     | 104         |
| 9             | 9           | E             | 41          | «             | 73          | <u>end</u>       | 105         |
| a             | 10          | F             | 42          | <             | 74          | <u>own</u>       | 106         |
| b             | 11          | G             | 43          | ≠             | 75          | <u>Boolean</u>   | 107         |
| c             | 12          | H             | 44          | ⌊             | 76          | <u>integer</u>   | 108         |
| d             | 13          | I             | 45          | ^             | 77          | <u>real</u>      | 109         |
| e             | 14          | J             | 46          | √             | 78          | <u>array</u>     | 110         |
| f             | 15          | K             | 47          | ⊃             | 79          | <u>switch</u>    | 111         |
| g             | 16          | L             | 48          | ≡             | 80          | <u>procedure</u> | 112         |
| h             | 17          | M             | 49          | <u>go to</u>  | 81          | <u>string</u>    | 113         |
| i             | 18          | N             | 50          | <u>if</u>     | 82          | <u>label</u>     | 114         |
| j             | 19          | O             | 51          | <u>then</u>   | 83          | <u>value</u>     | 115         |
| k             | 20          | P             | 52          | <u>else</u>   | 84          | <u>true</u>      | 116         |
| l             | 21          | Q             | 53          | <u>for</u>    | 85          | <u>false</u>     | 117         |
| m             | 22          | R             | 54          | <u>do</u>     | 86          | tab              | 118         |
| n             | 23          | S             | 55          | ,             | 87          | nlcr             | 119         |
| o             | 24          | T             | 56          | .             | 88          | '                | 120         |
| p             | 25          | U             | 57          | 10            | 89          | "                | 121         |
| q             | 26          | V             | 58          | :             | 90          | stopcode or?     | 122         |
| r             | 27          | W             | 59          | ;             | 91          |                  |             |
| s             | 28          | X             | 60          | :=            | 92          |                  |             |
| t             | 29          | Y             | 61          | ⌋             | 93          |                  |             |
| u             | 30          | Z             | 62          | <u>step</u>   | 94          |                  |             |
| v             | 31          |               |             | <u>until</u>  | 95          |                  |             |

N.B. The Flexowriter symbols tab nlcr ' and " are not accepted as ALGOL 60 symbols except in strings.

The Flexowriter symbols ? or stopcode denote the end of the ALGOL program.

The ALGOL symbol `␣` corresponds with the Flexowriter symbol space. It has no significance outside strings.

7. Flexowriter code

| <u>Symbol</u><br><u>Upper Case</u> | <u>lower case</u> | <u>code</u> | <u>Symbol</u><br><u>Upper Case</u> | <u>lower case</u> | <u>code</u> |
|------------------------------------|-------------------|-------------|------------------------------------|-------------------|-------------|
| A                                  | a                 | 97          | ^                                  | 0                 | 32          |
| B                                  | b                 | 98          | V                                  | 1                 | 1           |
| C                                  | c                 | 115         | x                                  | 2                 | 2           |
| D                                  | d                 | 100         | /                                  | 3                 | 19          |
| E                                  | e                 | 117         | =                                  | 4                 | 4           |
| F                                  | f                 | 118         | ;                                  | 5                 | 21          |
| G                                  | g                 | 103         | [                                  | 6                 | 22          |
| H                                  | h                 | 104         | ]                                  | 7                 | 7           |
| I                                  | i                 | 121         | (                                  | 8                 | 8           |
| J                                  | j                 | 81          | )                                  | 9                 | 25          |
| K                                  | k                 | 82          |                                    | _                 | 14          |
| L                                  | l                 | 67          | >                                  | <                 | 49          |
| M                                  | m                 | 84          | "                                  | +                 | 112         |
| N                                  | n                 | 69          | ?                                  | ,                 | 91          |
| O                                  | o                 | 70          | '                                  | 10                | 59          |
| P                                  | p                 | 87          | :                                  | .                 | 107         |
| Q                                  | q                 | 88          | ┐                                  | -                 | 64          |
| R                                  | r                 | 73          | tab                                |                   | 62          |
| S                                  | s                 | 50          | nlcr                               |                   | 26          |
| T                                  | t                 | 35          | lower case                         |                   | 122         |
| U                                  | u                 | 52          | Upper Case                         |                   | 124         |
| V                                  | v                 | 37          | space                              |                   | 16          |
| W                                  | w                 | 38          | erase                              |                   | 127         |
| X                                  | x                 | 55          | stopcode                           |                   | 11          |
| Y                                  | y                 | 56          |                                    |                   |             |
| Z                                  | z                 | 41          |                                    |                   |             |

Addenda and corrigenda in MR61, Text of the second ALGOL 60  
translator for the X1.

1. Corrections.

The correction tapes described can be simply added to (or read in after) the binary tape of the translator, provided this tape has been made following the instructions given in 4.1. and 4.2. and using the standard tape.

Most of the corrections refer exclusively to the use of the translator as a text-tester and are of no consequence to the object tapes produced optionally.

1.1            DP YE 4014   EZ0  
              DP ZU 763    EZ0  
              DP ZE     0   EZ0  
              DP HL 1836   EZ0  
              DP FK 1504   EZ0  
              DP ZL 469    EZ0  
              DP LR 2349   EZ0  
              DP HY 2001   EZ0

              DA 16 YE 5   DI

16     U 1A 87        A Z

17     N 2T 21 YE 5   A

18     U 1S 4 ZE 1    Z

19     Y 5S 3 ZE 1

20        2T 19 ZU11 A

21     U 1A 98        A Z

22     Y 4S 4 ZE 1

23     U 1A 99        A Z

24     Y 5S 4 ZE 1

25     U 1A 101       A Z

26     Y 5S 4 ZE 1    Z

27     N 2T 19 ZU11 A

28        2S 3 ZE 1    Z

29     Y 2T 0 ZU12 A

30        7Y 1034 C 0

              DCD0

This correction improves the checking of array declarations.

```
1.2.      DA  22 YE 0  DN
          + 16822258
          DA  24 YE 0
          + 49827840
          DCD0
```

This correction refers to function designators occurring in switch declarations.

```
1.3.      DA  20 HL 0  DI
          20      2T  26 ZU 9  A
              DA  26 ZU 9
          26      2A  12 ZE 0
          27      2LA2048      A Z
          28      Y  2A   0 ZE 1
          29      Y  2T  21 HL 0  A
          30      2A   1      A P
          31      2T  11 HL 1  A
          DCD0
```

Before this correction, procedure identifiers occurring in subscript expressions would sometimes give difficulties.

```
1.4.      DA  2 FK 0  DI
          2      0T  0      A
          DCD0
```

This is an adaptation to the definition of the relation, given in the Revised Report, section 3.4.1., differing from that in the original Report.

```
1.5.      DA  00 ZU 2  DI
          0      2T  24 ZU 2  A
          DA  24 ZU 2
```

```

24  U 1S 98      A Z
25  Y 2T  0 ZU 0 A
26  U 1S 99      A Z
27  N 2T 23 ZU 6 A
28      6T  0 ZL 0 5      RUND
29  U 1A 98      A Z
30  N 2T  3 ZU 0 A
31      7Y1062 C 0
      DA 23 ZU 6
23  U 1S 101     A Z
24  N 2T 12 YE 5 A
25      6T  0 ZL 0 5
26      2S 12 ZE 0
27      2LS  3      A Z
28  N 7Y1088 C 0
29      2T  3 ZU 0 A
      DA 15 HY 0
15      2T  8 YE 5 A
      DA  8 YE 5
 8      2S  0 ZE 1
 9  U 2LS 31 YE 5  Z
10  N 2T 16 HY 0 A
11      7Y1086 C 0
12      2S 12 ZE 0
13      2LS  2      A Z
14  N 2T  0 ZU 0 A
15      7Y1086 C 0
      DA 31 YE 5
31      0A  0 X 0  C
      DCD0

```

This correction causes syntactical errors due to the omission of operators or identifiers, or to discrepancies between declarations of identifiers and their use in expressions, to be detected sooner and more completely.

```

1.6.      DA 25 ZU 0 DI
          25 Y 2T 28 ZU 3 A
            DA 28 ZU 3
          28 3A 7 ZE 0
          29 U 1A 122 A Z
          30 N 2T 10 ZU 4 A
          31 2T 28 ZU10 A
            DA 28 ZU10
          28 2A 9 ZE 0 Z
          29 Y 2T 10 ZU 4 A
            7Y1020 C 0
            DCD0

```

This correction prevents the translator program from running wild in some cases of missing end's.

```

1.7.      DA 27 LR 1 DI
          Y 2LS 15 A
            DCD0

```

Without this correction, a formal array identifier would cause difficulties.

```

1.8.      DA 20 YE 1 DN
          + 50393056
            DCD0

```

This correction improves the checking of the syntactical situation preceding any delimiter "(".

1.9. Now follow some corrections not affecting the translator program, but only section 5., describing the "procedure" of adding names to the system.

Page 199 : for  
read

DPRZ ... DCD0

DPRZ 4206 EZ 0

DA n1 RZ 0

DI 0A n0 ES 0

DCD0

for Q1 := Q5 := Q4 ...

read

Q1 := Q3 := Q4 ...

Page 200 : for

DPLN ... EZ 0

read

DPLN 4270 EZ 0

for nade code I

read

name code I

## 2. Addenda

The following will probably be of only secondary importance to other X1-installations than that of the Mathematical Centre. It describes the provisions taken for adding 21 names to the fixed part of the name-list. The corresponding machine code procedures have not been - and will not be - added to the complex tape. So the only effect of adding these names will be, that ALGOL 60 procedures calling for the corresponding procedures may pass the translator when used as a text-tester.

Page 1 : installation-dependent paragraph definitions.

DP EZ 0 X 6

DP EE 4576 EZ 0

DP EF 80 EE 0

DP EH 1024 EF 0

DP EK 320 EH 0

DP EL 67 X 0

DP ER 250 X 0

DP ES 9 X 3

DP ET12288 X 0

Page 4 : paragraph definitions for RZ and LN

DP RZ 4206 EZ 0

DP LN 4302 EZ 0

Page 117 : additional names and name codes in fixed part of  
name list

|    | DA | 23 LN 4 DN |           |
|----|----|------------|-----------|
| 23 | -  | 46 369 880 | PUTEXT1   |
| 24 | +  | 3 963 391  |           |
| 25 | +  | 65 558     |           |
| 26 | +  | 2 097 156  |           |
| 27 | +  | 38 092 375 | available |
| 28 | +  | 44 405 935 |           |
| 29 | +  | 31 457 279 |           |
| 30 | +  | 4 194 347  |           |
| 31 | +  | 19 136 517 |           |

|    | DA | 0 LN 5     |           |
|----|----|------------|-----------|
| 0  | +  | 59 486 311 | cons      |
| 1  | +  | 4 325 420  |           |
| 2  | +  | 19 136 515 |           |
| 3  | +  | 56 957 439 | car       |
| 4  | +  | 4 259 885  |           |
| 5  | +  | 19 136 515 |           |
| 6  | +  | 57 055 743 | cdr       |
| 7  | +  | 4 259 886  |           |
| 8  | +  | 19 136 515 |           |
| 9  | +  | 46 938 711 | atom      |
| 10 | +  | 4 259 887  |           |
| 11 | +  | 18 874 371 |           |
| 12 | +  | 55 017 471 | eq        |
| 13 | +  | 4 325 424  |           |
| 14 | +  | 18 874 371 |           |
| 15 | +  | 56 965 863 | startlisp |
| 16 | +  | 59 321 071 |           |

|    |              |             |
|----|--------------|-------------|
| 17 | + 54 525 951 |             |
| 18 | + 65 585     |             |
| 19 | + 2 097 157  |             |
| 20 | + 44 733 543 | call        |
| 21 | + 131 122    |             |
| 22 | + 2 097 155  |             |
| 23 | + 27 598 047 | readstring  |
| 24 | + 38 648 551 |             |
| 25 | + 34 340 863 |             |
| 26 | + 65 587     |             |
| 27 | + 2 097 157  |             |
| 28 | + 48 838 351 | printstring |
| 29 | + 57 587 951 |             |
| 30 | + 34 317 823 |             |
| 31 | + 4 259 892  |             |
|    | DCD0         |             |

|    | DA           | 0 LN 6 DI |            |
|----|--------------|-----------|------------|
| 0  | + 19 136 517 |           |            |
| 1  | + 61 750 479 |           | puststring |
| 2  | + 34 317 535 |           |            |
| 3  | + 4 259 893  |           |            |
| 4  | + 19 136 516 |           |            |
| 5  | + 23 805 119 |           | number     |
| 6  | + 57 114 623 |           |            |
| 7  | + 4 259 894  |           |            |
| 8  | + 18 874 372 |           |            |
| 9  | + 63 608 063 |           | value      |
| 10 | + 31 457 279 |           |            |
| 11 | + 4 259 895  |           |            |
| 12 | + 19 136 516 |           |            |
| 13 | + 38 648 551 |           | string     |
| 14 | + 34 340 863 |           |            |
| 15 | + 4 259 896  |           |            |
| 16 | + 19 136 516 |           |            |
| 17 | + 30 055 535 |           | delete     |
| 18 | + 30 343 167 |           |            |

|    |    |            |            |
|----|----|------------|------------|
| 19 | +  | 65 593     |            |
| 20 | +  | 2 097 156  |            |
| 21 | -  | 15 081 048 | PLOT       |
| 22 | +  | 4 390 970  |            |
| 23 | +  | 19 136 515 |            |
| 24 | -  | 15 081 048 | PLOTFRAME  |
| 25 | -  | 30 216 872 |            |
| 26 | -  | 46 137 344 |            |
| 27 | +  | 393 275    |            |
| 28 | +  | 2 097 157  |            |
| 29 | -  | 15 081 048 | PLOTTEXT   |
| 30 | -  | 14 789 688 |            |
| 31 | +  | 524 348    |            |
|    | DA | 0 LN 7     |            |
| 0  | +  | 2 097 156  |            |
| 1  | -  | 15 081 048 | PLOTAXIS   |
| 2  | -  | 17 368 784 |            |
| 3  | +  | 327 741    |            |
| 4  | +  | 2 097 156  |            |
| 5  | -  | 15 081 048 | PLOTCURVE  |
| 6  | -  | 10 783 936 |            |
| 7  | -  | 46 137 344 |            |
| 8  | +  | 4 390 974  |            |
| 9  | +  | 19 136 517 |            |
| 10 | -  | 23 176 360 |            |
| 11 | -  | 15 080 960 |            |
| 12 | +  | 589 887    | FIXPLOT    |
| 13 | +  | 2 097 156  |            |
| 14 | -  | 44 315 344 |            |
| 15 | -  | 31 819 408 |            |
| 16 | -  | 15 073 280 | ABSFIXPLOT |
| 17 | +  | 589 888    |            |
| 18 | +  | 2 097 157  |            |
| 19 | -  | 23 469 736 |            |
| 20 | -  | 15 080 960 | FLOPLOT    |
| 21 | +  | 589 889    |            |

|    |   |            |      |
|----|---|------------|------|
| 22 | + | 2 097 156  |      |
| 23 | - | 46 897 280 |      |
| 24 | + | 65 558     | KODE |
| 25 | + | 2 097 155  |      |

DCD0

Page 119 : additions to fixed contents of address pile

|    |    |         |    |             |    |
|----|----|---------|----|-------------|----|
|    | DA | 10 RZ 1 | DI |             |    |
| 10 | 0A | 11 ES 3 |    | PUTEXT1     | TH |
| 11 | 0A | 12 ES 3 |    | available   | TK |
| 12 | 0A | 13 ES 3 |    | cons        | TL |
| 13 | 0A | 14 ES 3 |    | car         | TR |
| 14 | 0A | 15 ES 3 |    | cdr         | TS |
| 15 | 0A | 16 ES 3 |    | atom        | TT |
| 16 | 0A | 17 ES 3 |    | eq          | TW |
| 17 | 0A | 18 ES 3 |    | startlisp   | TU |
| 18 | 0A | 19 ES 3 |    | call        | TY |
| 19 | 0A | 20 ES 3 |    | readstring  | TN |
| 20 | 0A | 21 ES 3 |    | printstring | WZ |
| 21 | 0A | 22 ES 3 |    | puststring  | WE |
| 22 | 0A | 23 ES 3 |    | number      | WF |
| 23 | 0A | 24 ES 3 |    | value       | WH |
| 24 | 0A | 25 ES 3 |    | string      | WK |
| 25 | 0A | 26 ES 3 |    | delete      | WL |
| 26 | 0A | 27 ES 3 |    | PLOT        | WR |
| 27 | 0A | 28 ES 3 |    | PLOTFRAME   | WS |
| 28 | 0A | 29 ES 3 |    | PLOTTEXT    | WT |
| 29 | 0A | 30 ES 3 |    | PLOTAXIS    | WU |
| 30 | 0A | 31 ES 3 |    | PLOTCURVE   | WY |
| 31 | 0A | 0 ES 4  |    | FIXPLOT     | WN |
| 32 | 0A | 1 ES 4  |    | ABSFIXPLOT  | UZ |
| 32 | 0A | 2 ES 4  |    | FLOPLOT     | UE |
| 33 | 0A | 3 ES 4  |    | KODE        | UF |

DCD0

Unlike the corrections, described in 1., the addenda cannot be effectuated by adding a correction tape to the binary tape. A new standard tape has to be made. Then, according to the instructions given in 4.2. of MR61, a new binary tape can be made. For 4341 in line 5 now 4472 should be read.

Amsterdam, 1-7-64

P.J.J. van de Laarschot  
J. Nederkoorn

Addenda and corrigenda (II) in MR 61, Text of the second ALGOL 60 translator for the X1.

The correction tapes described can be simply added to (or read in after) the binary tape of the translator, provided this tape has been made following the instructions given in 4.1. and 4.2. and using the standard tape.

The following additions have been written with the intention to find more than one failure in a program during one checkrun. When a failure has been detected, the user may try to scan further (after G7) with "Start Next Address". This facility, that already existed for some stops, has now been extended to a larger number, including stop 1048 (name undeclared).

All extra information delivered by restarting the program after detection of the first mistake, should be interpreted with great caution. No guarantee can be given, that stop numbers printed out in these circumstances, will make sense. If restarting results in the printing (after autostart G7) of non-existing stop numbers, or if the program stops reading the tape, no further information can be expected.

DP ZE 0 EZ0  
DP FE 1407 EZ0  
DP RZ 4206 EZ0  
DP TT 3417 EZ0  
DP ZY 1289 EZ0  
DP RN 2727 EZ0  
DP RY 2704 EZ0  
DP ZR 661 EZ0  
DP SZ 2746 EZ0

DA 27 FE 1 DI  
2T 16 RZ 2 A  
DA 16 RZ 2 DI

⇒

16 7Y 1048 IC 0 name undeclared

17 2S 8 A

18 4S 12 ZE 0 type arithmetical

19 6T 5 TT 0 1 ⇒ fill name code I, name code II and FNL

20 2T 6 ZY 0 A ⇒ Basic Cycle

21 N 0A 16383 X 0

22 7Y 0 IC 0

23 7P

24 7P

15RNO ⇒ 25 2S 2 ZE 0 line-number

26 6T 0 D22 0 DT

27 A G8-L8 XN DI

28 2A 23 RZ 2

29 6A 8 X 0 restore  $\lambda_0$

30 2T 9 X 0 E ⇒

31 DCD0

|      |      |       |       |    |    |                      |
|------|------|-------|-------|----|----|----------------------|
|      | DA   | 0     | RN    | 0  | DI |                      |
| G7⇒0 | 2A   | 8     | X     | 0  |    |                      |
| 1    | 6A   | 23    | RZ    | 2  |    | save $\lambda_0$     |
| 2    | 2A   | 9     | X     | 0  |    |                      |
| 3    | 6A   | 24    | RZ    | 2  |    | save $\lambda_1$     |
| 4    | 6T   | 10    | D28   | 0  | ⇒  | NLCR                 |
| 5    | 2B   | 23    | X     | 0  |    |                      |
| 6    | 2S   | 32767 | X     | 0  | B  |                      |
| 7    | 3LS  | 21    | RZ    | 2  |    |                      |
| 8    | 1S   | 22    | RZ    | 2  | Z  |                      |
| 9    | N    | 4P    | BS    |    |    |                      |
| 10   | Y    | 2S    | 32767 | X  | 0  | B                    |
| 11   | 2LS  | 16383 |       |    | A  |                      |
| 12   | U    | 1S    | 199   |    | A  | P                    |
| 13   | 6T   | 0     | D22   | 0  | DT |                      |
| 14   | A    | G4    | NL4   | XN | DI |                      |
| 15   | Y    | 6T    | 25    | RZ | 2  | 1 ⇒ type line number |
| 16   | 2A   | 24    | RZ    | 2  |    |                      |
| 17   | 6A   | 9     | X     | 0  |    | restore $\lambda_1$  |
| 18   | 2T   | 19    | D     | 7  | A  | ⇒                    |
|      | DCD0 |       |       |    |    |                      |

|      |    |    |   |    |                  |
|------|----|----|---|----|------------------|
| DA   | 13 | RY | 0 | DI |                  |
| 3LS  | 0  | ZR | 0 | A  | SPS              |
| 3LS  | 0  | SZ | 0 | A  | START            |
| DA   | 20 | RY | 0 | DI |                  |
| 3LS  | 0  | RN | 0 | A  | type stop number |
| DCD0 |    |    |   |    |                  |

|      |   |    |   |    |
|------|---|----|---|----|
| DA   | 2 | ZR | 0 | DI |
| 1Y   | 4 | XP |   |    |
| DCD0 |   |    |   |    |

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