```
RRRRRRRRRRR      UUU          UUU  NNN         NNN     000000000     FFFFFFFFFFFFFFF   FFFFFFFFFFFFFFF
RRRRRRRRRRRR     UUU          UUU  NNN         NNN     000000000     FFFFFFFFFFFFFFF   FFFFFFFFFFFFFFF
RRRRRRRRRRRR     UUU          UUU  NNN         NNN     000000000     FFFFFFFFFFFFFFF   FFFFFFFFFFFFFFF
RRR          RRR UUU          UUU  NNN         NNN  000          000 FFF               FFF
RRR          RRR UUU          UUU  NNN         NNN  000          000 FFF               FFF
RRR          RRR UUU          UUU  NNN         NNN  000          000 FFF               FFF
RRR          RRR UUU          UUU  NNNNNN      NNN  000          000 FFF               FFF
RRR          RRR UUU          UUU  NNNNNN      NNN  000          000 FFF               FFF
RRR          RRR UUU          UUU  NNNNNN      NNN  000          000 FFF               FFF
RRRRRRRRRRR      UUU          UUU  NNN   NNN   NNN  000          000 FFFFFFFFFFF       FFFFFFFFFFF
RRRRRRRRRRRR     UUU          UUU  NNN   NNN   NNN  000          000 FFFFFFFFFFF       FFFFFFFFFFF
RRRRRRRRRRRR     UUU          UUU  NNN   NNN   NNN  000          000 FFFFFFFFFFF       FFFFFFFFFFF
RRR   RRR        UUU          UUU  NNN       NNNNNN 000          000 FFF               FFF
RRR   RRR        UUU          UUU  NNN       NNNNNN 000          000 FFF               FFF
RRR   RRR        UUU          UUU  NNN       NNNNNN 000          000 FFF               FFF
RRR      RRR     UUU          UUU  NNN          NNN 000          000 FFF               FFF
RRR      RRR     UUU          UUU  NNN          NNN 000          000 FFF               FFF
RRR      RRR     UUU          UUU  NNN          NNN 000          000 FFF               FFF
RRR         RRR  UUUUUUUUUUUUUUU  NNN          NNN    000000000     FFF               FFF
RRR         RRR  UUUUUUUUUUUUUUU  NNN          NNN    000000000     FFF               FFF
RRR         RRR  UUUUUUUUUUUUUUU  NNN          NNN    000000000     FFF               FFF
RRR         RRR  UUUUUUUUUUUUUUU  NNN          NNN    000000000     FFF               FFF
RRR         RRR  UUUUUUUUUUUUUUU  NNN          NNN    000000000     FFF               FFF
```

```
_$2

Sym
---
NDX
NDX
NUM
NUM
OPE
OUT
PAC
PAC
PAC
PAC
PAC
PAC
PAC
PAD
PAG
PAG
PAG
PAG
PAG
PAG
PAG
PER
PUT
RCO
RIN

RLI
RNO
RNO
RTY
SAV
STR
STR
STR
STR
STR
STR

STR
STR
STR
STR
STR
STR
STR
STR
STR
STR
STR
STR
STR
STR
STR
STR
```

```
NN       NN    AAAAAA    TTTTTTTTTT  EEEEEEEEEE
NN       NN    AAAAAA    TTTTTTTTTT  EEEEEEEEEE
NN       NN   AA    AA       TT      EE
NN       NN   AA    AA       TT      EE
NNNN     NN   AA    AA       TT      EE
NNNN     NN   AA    AA       TT      EE
NN  NN   NN   AA    AA       TT      EEEEEEEE
NN  NN   NN   AA    AA       TT      EEEEEEEE
NN    NNNN   AAAAAAAAAA     TT      EE
NN    NNNN   AAAAAAAAAA     TT      EE
NN       NN   AA    AA       TT      EE              ....
NN       NN   AA    AA       TT      EE              ....
NN       NN   AA    AA       TT      EEEEEEEEEE      ....
NN       NN   AA    AA       TT      EEEEEEEEEE      ....

LL            IIIIII      SSSSSSSS
LL            IIIIII      SSSSSSSS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II        SSSSSS
LL              II        SSSSSS
LL              II              SS
LL              II              SS
LL              II              SS
LL              II              SS
LLLLLLLLLL    IIIIII    SSSSSSSS
LLLLLLLLLL    IIIIII    SSSSSSSS
```

```
;     1          0001  0 %TITLE 'Initialize ATABLE'
;     2          0002  0 MODULE NATE (    IDENT = 'V04-000'
;     3        P 0003  0                 %BLISS32[, ADDRESSING_MODE (EXTERNAL    = long_relative,
;     4          0004  0                                            NONEXTERNAL = long_relative)]
;     5          0005  0                 ) =
;     6          0006  1 BEGIN
;     7          0007  1 !
;     8          0008  1 !**************************************************************************
;     9          0009  1 !*                                                                        *
;    10          0010  1 !*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                               *
;    11          0011  1 !*  DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.                 *
;    12          0012  1 !*  ALL RIGHTS RESERVED.                                                   *
;    13          0013  1 !*                                                                        *
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;    15          0015  1 !*  ONLY IN  ACCORDANCE WITH  THE  TERMS  OF  SUCH  LICENSE  AND WITH THE  *
;    16          0016  1 !*  INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS SOFTWARE OR  ANY  OTHER   *
;    17          0017  1 !*  COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY   *
;    18          0018  1 !*  OTHER PERSON.  NO TITLE TO AND OWNERSHIP OF  THE  SOFTWARE IS  HEREBY   *
;    19          0019  1 !*  TRANSFERRED.                                                           *
;    20          0020  1 !*                                                                        *
;    21          0021  1 !*  THE INFORMATION IN THIS SOFTWARE IS  SUBJECT TO CHANGE WITHOUT NOTICE   *
;    22          0022  1 !*  AND  SHOULD  NOT  BE  CONSTRUED AS  A COMMITMENT BY DIGITAL EQUIPMENT   *
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;    24          0024  1 !*                                                                        *
;    25          0025  1 !*  DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE  OR  RELIABILITY OF ITS   *
;    26          0026  1 !*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.                *
;    27          0027  1 !*                                                                        *
;    28          0028  1 !*                                                                        *
;    29          0029  1 !**************************************************************************
;    30          0030  1 !
;    31          0031  1 !++
;    32          0032  1 ! FACILITY:      DSR (Digital Standard RUNOFF) / DSRPLUS
;    33          0033  1 !
;    34          0034  1 ! ABSTRACT:      Normalize an action table entry.
;    35          0035  1 !
;    36          0036  1 ! ENVIRONMENT:   Transportable
;    37          0037  1 !
;    38          0038  1 ! AUTHOR:        R.W.Friday      CREATION DATE:  April, 1978
;    39          0039  1 !
```

```
;    41          0040  1 %SBTTL 'Revision History'
;    42          0041  1 !
;    43          0042  1 ! MODIFIED BY:
;    44          0043  1 !
;    45          0044  1 !       005     REM00005        Ray Marshall    17-November-1983
;    46          0045  1 !               Modified the external definition of ATABLE to use the new
;    47          0046  1 !                 macro ATABLE_DEFINITION defined in ATCODE.REQ.
;    48          0047  1 !
;    49          0048  1 !       004     REM00004        Ray Marshall    7-November-1983
;    50          0049  1 !               Added definitions for 128 (decimal) more characters.  These
;    51          0050  1 !                 are the added definitions for the DEC multinational
;    52          0051  1 !                 character set.
;    53          0052  1 !
;    54          0053  1 !       003     KAD00003        Keith Dawson    07-Mar-1983
;    55          0054  1 !               Global edit of all modules. Updated module names, idents,
;    56          0055  1 !               copyright dates. Changed require files to BLISS library.
;    57          0056  1 !
;    58          0057  1 !--
```

```
;    60          0058  1 %SBTTL 'Module Level Declarations'
;    61          0059  1
;    62          0060  1 !
;    63          0061  1 ! TABLE OF CONTENTS:
;    64          0062  1 !
;    65          0063  1 ! EQUATED SYMBOLS:
;    66          0064  1 !
;    67          0065  1 !
;    68          0066  1 ! INCLUDE FILES:
;    69          0067  1 !
;    70          0068  1
;    71          0069  1 LIBRARY 'NXPORT:XPORT';                 ! XPORT Library
;    72          0070  1 REQUIRE 'REQ:RNODEF';                   ! RUNOFF variant definitions
;    73          0201  1
;    74        U 0202  1 %IF DSRPLUS %THEN
;    75        U 0203  1 LIBRARY 'REQ:DPLLIB';                 ! DSRPLUS BLISS Library
;    76          0204  1 %ELSE
;    77          0205  1 LIBRARY 'REQ:DSRLIB';                   ! DSR BLISS Library
;    78          0206  1 %FI
;    79          0207  1
;    80          0208  1 EXTERNAL LITERAL
;    81          0209  1     rintes : UNSIGNED (8);
;    82          0210  1
;    83          0211  1 LITERAL
;    84          0212  1     tab_character = %O'11';
;    85          0213  1
;    86          0214  1 !
;    87          0215  1 ! EXTERNAL REFERENCES:
;    88          0216  1 !
;    89          0217  1 EXTERNAL
;    90          0218  1     atable : atable_definition; ! Action table.  Used to identify what type of
;    91          0219  1                                ! action is to be taken on encountering any
;    92          0220  1                                ! given character.
```

```
;    94          0221  1 GLOBAL ROUTINE nate (kharacter) : NOVALUE =
;    95          0222  1
;    96          0223  1 !++
;    97          0224  1 ! FUNCTIONAL DESCRIPTION:
;    98          0225  1 !
;    99          0226  1 !       NATE ensures that an ATABLE entry for a particular character
;   100          0227  1 !       corresponds to what that character usually represents.
;   101          0228  1 !
;   102          0229  1 ! FORMAL PARAMETERS:
;   103          0230  1 !
;   104          0231  1 !       kharacter - indicates which action table entry should be reset.
;   105          0232  1 !
;   106          0233  1 ! IMPLICIT INPUTS:      None
;   107          0234  1 !
;   108          0235  1 ! IMPLICIT OUTPUTS:     None
;   109          0236  1 !
;   110          0237  1 ! ROUTINE VALUE:
;   111          0238  1 ! COMPLETION CODES:     None
;   112          0239  1 !
;   113          0240  1 ! SIDE EFFECTS:         None
;   114          0241  1 !
;   115          0242  1 !--
;   116          0243  1
;   117          0244  2     BEGIN
;   118          0245  2     !
;   119          0246  2     ! The order of statements in the SELECTONE statement is important.
;   120          0247  2     ! This is because some classifications (such as a_punct) must be
;   121          0248  2     ! made before others (such as a_other) because they share characters
;   122          0249  2     ! in common.
;   123          0250  2     !
;   124          0251  3     atable [.kharacter] = (SELECTONE .kharacter OF
;   125          0252  3                                 SET
;   126          0253  3                                 [rintes] :                      a_int_esc;
;   127          0254  3                                 [tab_character] :               a_tab;
;   128          0255  3                                 [0 TO %O'37'] :                 a_control;
;   129          0256  3                                 [%O'40'] :                      a_space;
;   130          0257  3                                 [%C'.', %C':', %C'!', %C'?'] :  a_punct;
;   131          0258  3                                 [%O'41' TO %O'57'] :            a_other;
;   132          0259  3                                 [%C'0' TO %C'9'] :              a_digit;
;   133          0260  3                                 [%O'72' TO %O'100'] :           a_other;
;   134          0261  3                                 [%C'A' TO %C'Z'] :              a_u_letter;
;   135          0262  3                                 [%O'133' TO %O'140'] :          a_other;
;   136          0263  3                                 [%C'a' TO %C'z'] :              a_l_letter;
;   137          0264  3                                 [%O'173' TO %O'176'] :          a_other;
;   138          0265  3                                 [%O'177'] :                     a_control;
;   139          0266  3
;   140          0267  3         !  Additional characters for the multi-national character set:
;   141          0268  3
;   142        C 0269  3 %( Remove block comment if any of these cause problems.
;   143        C 0270  3
;   144        C 0271  3         !  To start off with, we must map the currently "reserved" character
;   145        C 0272  3         !  codes as control characters because they tend to adversly affect
;   146        C 0273  3         !  most output devices.  They can be just removed from the code as
;   147        C 0274  3         !  they are defined as printable characters since their values are
;   148        C 0275  3         !  already included in the ranges below.
;   149        C 0276  3
;   150        C 0277  3                                 [%DECIMAL'166'] :               a_control;
```

```
;  151          C 0278  3                          [%DECIMAL'172'] :               a_control;
;  152          C 0279  3                          [%DECIMAL'173'] :               a_control;
;  153          C 0280  3                          [%DECIMAL'174'] :               a_control;
;  154          C 0281  3                          [%DECIMAL'175'] :               a_control;
;  155          C 0282  3                          [%DECIMAL'180'] :               a_control;
;  156          C 0283  3                          [%DECIMAL'184'] :               a_control;
;  157          C 0284  3                          [%DECIMAL'190'] :               a_control;
;  158          C 0285  3                          [%DECIMAL'208'] :               a_control;
;  159          C 0286  3                          [%DECIMAL'222'] :               a_control;
;  160          C 0287  3                          [%DECIMAL'240'] :               a_control;
;  161          C 0288  3                          [%DECIMAL'254'] :               a_control;
;  162            0289  3 )%
;  163            0290  3          ! The following defines all characters from 128 through 255 decimal.
;  164            0291  3
;  165            0292  3                          [%DECIMAL'128' TO %DECIMAL'159'] : a_control;
;  166            0293  3                          [%DECIMAL'160'] :                  a_other;
;  167            0294  3                          [%DECIMAL'161' TO %DECIMAL'191'] : a_other;
;  168            0295  3                          [%DECIMAL'192' TO %DECIMAL'222'] : a_u_alpha;
;  169            0296  3                          [%DECIMAL'223'] :                  a_other;
;  170            0297  3                          [%DECIMAL'224' TO %DECIMAL'254'] : a_l_alpha;
;  171            0298  3                          [%DECIMAL'255'] :                  a_control;
;  172            0299  3
;  173            0300  2                          TES);
;  174            0301  2      RETURN;
;  175            0302  1      END;                                !End of NATE


                                                    .TITLE  NATE Initialize ATABLE
                                                    .IDENT  \V04-000\

                                                    .EXTRN  RINTES, ATABLE

                                                    .PSECT  $CODE$,NOWRT,2

                                0000 00000          .ENTRY  NATE, Save nothing                  ; 0221
                     51      04   AC  D0 00002      MOVL    KHARACTER, R1                       ; 0251
00000000G            8F           51  D1 00006      CMPL    R1, #RINTES                         ; 0253
                                  05  12 00009      BNEQ    1$
                     50           08  D0 0000B      MOVL    #8, R0
                                  75  11 0000E      BRB     10$
                     09           51  D1 00010  1$: CMPL    R1, #9                              ; 0254
                                  05  12 00013      BNEQ    2$
                     50           02  D0 00015      MOVL    #2, R0
                                  6B  11 00018      BRB     10$
                                  51  D5 0001A  2$: TSTL    R1                                  ; 0255
                                  08  19 0001C      BLSS    3$
                     1F           51  D1 0001E      CMPL    R1, #31
                                  03  14 00021      BGTR    3$
                                011C  31 00023      BRW     24$
                     20           51  D1 00026  3$: CMPL    R1, #32                             ; 0256
                                  05  12 00029      BNEQ    4$
                     50           01  D0 0002B      MOVL    #1, R0
                                  7E  11 0002E      BRB     13$
                     21           51  D1 00030  4$: CMPL    R1, #33                             ; 0257
                                  0F  13 00033      BEQL    5$
                     2E           51  D1 00035      CMPL    R1, #46
                                  0A  13 00038      BEQL    5$
```

```
                 3A     51  D1 0003E          CMPL    R1, #58                                  ;
                        05  13 00041          BEQL    5$                                       ;
                 3F     51  D1 00043          CMPL    R1, #63                                  ;
                        05  12 00046          BNEQ    6$                                       ;
                 50     09  D0 00048 5$:      MOVL    #9, R0                                   ;
                        65  11 0004B          BRB     13$                                      ;
                 21     51  D1 0004D 6$:      CMPL    R1, #33                                  ; 0258
                        05  19 00050          BLSS    7$                                       ;
                 2F     51  D1 00052          CMPL    R1, #47                                  ;
                        6D  15 00055          BLEQ    15$                                      ;
                 30     51  D1 00057 7$:      CMPL    R1, #48                                  ; 0259
                        0A  19 0005A          BLSS    8$                                       ;
                 39     51  D1 0005C          CMPL    R1, #57                                  ;
                        05  14 0005F          BGTR    8$                                       ;
                 50     07  D0 00061          MOVL    #7, R0                                   ;
                        4C  11 00064          BRB     13$                                      ;
                 3A     51  D1 00066 8$:      CMPL    R1, #58                                  ; 0260
                        09  19 00069          BLSS    9$                                       ;
00000040         8F     51  D1 0006B          CMPL    R1, #64                                  ;
                        50  15 00072          BLEQ    15$                                      ;
00000041         8F     51  D1 00074 9$:      CMPL    R1, #65                                  ; 0261
                        0E  19 0007B          BLSS    11$                                      ;
0000005A         8F     51  D1 0007D          CMPL    R1, #90                                  ;
                        05  14 00084          BGTR    11$                                      ;
                 50     05  D0 00086          MOVL    #5, R0                                   ;
                        27  11 00089 10$:     BRB     13$                                      ;
0000005B         8F     51  D1 0008B 11$:     CMPL    R1, #91                                  ; 0262
                        09  19 00092          BLSS    12$                                      ;
00000060         8F     51  D1 00094          CMPL    R1, #96                                  ;
                        7F  15 0009B          BLEQ    20$                                      ;
00000061         8F     51  D1 0009D 12$:     CMPL    R1, #97                                  ; 0263
                        0E  19 000A4          BLSS    14$                                      ;
0000007A         8F     51  D1 000A6          CMPL    R1, #122                                 ;
                        05  14 000AD          BGTR    14$                                      ;
                 50     06  D0 000AF          MOVL    #6, R0                                   ;
                        6B  11 000B2 13$:     BRB     21$                                      ;
0000007B         8F     51  D1 000B4 14$:     CMPL    R1, #123                                 ; 0264
                        09  19 000BB          BLSS    16$                                      ;
0000007E         8F     51  D1 000BD          CMPL    R1, #126                                 ;
                        56  15 000C4 15$:     BLEQ    20$                                      ;
0000007F         8F     51  D1 000C6 16$:     CMPL    R1, #127                                 ; 0265
                        77  13 000CD          BEQL    24$                                      ;
00000080         8F     51  D1 000CF          CMPL    R1, #128                                 ; 0292
                        09  19 000D6          BLSS    17$                                      ;
0000009F         8F     51  D1 000D8          CMPL    R1, #159                                 ;
                        65  15 000DF          BLEQ    24$                                      ;
000000A0         8F     51  D1 000E1 17$:     CMPL    R1, #160                                 ; 0293
                        32  13 000E8          BEQL    20$                                      ;
000000A1         8F     51  D1 000EA          CMPL    R1, #161                                 ; 0294
                        09  19 000F1          BLSS    18$                                      ;
000000BF         8F     51  D1 000F3          CMPL    R1, #191                                 ;
                        20  15 000FA          BLEQ    20$                                      ;
000000C0         8F     51  D1 000FC 18$:     CMPL    R1, #192                                 ; 0295
                        0E  19 00103          BLSS    19$                                      ;
000000DE         8F     51  D1 00105          CMPL    R1, #222                                 ;
                        05  14 0010C          BGTR    19$                                      ;
                 50     0B  D0 0010E          MOVL    #11, R0                                  ;
```

```
                                 36  11 00111              BRB     25$
                 000000DF   8F  51  D1 00113 19$:         CMPL    R1, #223                        ;0296
                                 05  12 0011A              BNEQ    22$
                        50       0A  D0 0011C 20$:         MOVL    #10, R0
                                 28  11 0011F 21$:         BRB     25$
                 000000E0   8F  51  D1 00121 22$:         CMPL    R1, #224                        ;0297
                                 0E  19 00128              BLSS    23$
                 000000FE   8F  51  D1 0012A              CMPL    R1, #254
                                 05  14 00131              BGTR    23$
                        50       0C  D0 00133              MOVL    #12, R0
                                 11  11 00136              BRB     25$
                 000000FF   8F  51  D1 00138 23$:         CMPL    R1, #255                        ;0298
                                 05  13 0013F              BEQL    24$
                        50       01  CE 00141              MNEGL   #1, R0
                                 03  11 00144              BRB     25$
                        50       04  D0 00146 24$:         MOVL    #4, R0
                 00000000GEF41   50  90 00149 25$:         MOVB    R0, ATABLE[R1]                  ;0251
                                     04 00151              RET                                     ;0302

; Routine Size:  338 bytes,    Routine Base:  $CODE$ + 0000

;  176          0303  1
;  177          0304  1 END                                         !End of module
;  178          0305  0 ELUDOM




;                                  PSECT SUMMARY

;       Name                    Bytes                           Attributes

;  $CODE$                         338  NOVEC,NOWRT,  RD ,  EXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)



;                               Library Statistics

;                                        -------- Symbols --------      Pages       Processing
;       File                             Total    Loaded   Percent      Mapped      Time

;  _$255$DUA28:[SYSLIB]XPORT.L32;1         590         0         0         252       00:00.1
;  _$255$DUA28:[RUNOFF.SRC]DSRLIB.L32;1   1248        13         1          86       00:00.3



;                                  COMMAND QUALIFIERS

;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:NATE/OBJ=OBJ$:NATE MSRC$:NATE/UPDATE=(ENH$:NATE)
```

```
; Size:          338 code + 0 data bytes
; Run Time:        00:04.8
; Elapsed Time:    00:13.9
; Lines/CPU Min:    3836
; Lexemes/CPU-Min:  7320
; Memory Used:  57 pages
; Compilation Complete
```