```
RRRRRRRRRRRR      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
RRRRRRRRRRRR      UUU        UUU  NNN  NNN   NNN   000      000  FFFFFFFFFFFF      FFFFFFFFFFFF
RRRRRRRRRRRR      UUU        UUU  NNN  NNN   NNN   000      000  FFFFFFFFFFFF      FFFFFFFFFFFF
RRRRRRRRRRRR      UUU        UUU  NNN   NNN  NNN   000      000  FFFFFFFFFFFF      FFFFFFFFFFFF
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    NNNNN     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    UUUUUUUUUUUUUU  NNN        NNN   000      000  FFF               FFF
RRR        RRR    UUUUUUUUUUUUUU  NNN        NNN    000000000    FFF               FFF
RRR        RRR    UUUUUUUUUUUUUU  NNN        NNN    000000000    FFF               FFF
```

```
EEEEEEEEEE  LL           SSSSSSSS  EEEEEEEEEE  NN        NN
EEEEEEEEEE  LL           SSSSSSSS  EEEEEEEEEE  NN        NN
EE          LL         SS          EE          NN        NN
EE          LL         SS          EE          NN        NN
EE          LL         SS          EE          NNNN      NN
EE          LL         SS          EE          NNNN      NN
EEEEEEE     LL           SSSSSS    EEEEEEE     NN   NN   NN
EEEEEEE     LL           SSSSSS    EEEEEEE     NN   NN   NN
EE          LL                 SS  EE          NN    NNNN NN
EE          LL                 SS  EE          NN    NNNN NN
EE          LL                 SS  EE          NN        NN
EE          LL                 SS  EE          NN        NN
EEEEEEEEEE  LLLLLLLLLL  SSSSSSSS   EEEEEEEEEE  NN        NN
EEEEEEEEEE  LLLLLLLLLL  SSSSSSSS   EEEEEEEEEE  NN        NN
```

```
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 MODULE ELSEN (                                    !
    2       0002  0              IDENT = 'V04-000'
    3     P 0003  0 %BLISS32[,
    4     P 0004  0          ADDRESSING_MODE(EXTERNAL=LONG_RELATIVE,NONEXTERNAL=LONG_RELATIVE)
    5       0005  0          ]
    6       0006  0              ) =
    7       0007  1 BEGIN
    8       0008  1 !
    9       0009  1 !*********************************************************************
   10       0010  1 !*                                                                   *
   11       0011  1 !*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                          *
   12       0012  1 !*  DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.           *
   13       0013  1 !*  ALL RIGHTS RESERVED.                                             *
   14       0014  1 !*                                                                   *
   15       0015  1 !*  THIS SOFTWARE IS FURNISHED UNDER A LICENSE AND MAY BE USED AND COPIED  *
   16       0016  1 !*  ONLY IN  ACCORDANCE WITH  THE  TERMS  OF  SUCH LICENSE  AND WITH THE   *
   17       0017  1 !*  INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS SOFTWARE OR  ANY  OTHER  *
   18       0018  1 !*  COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY  *
   19       0019  1 !*  OTHER PERSON.  NO TITLE TO AND OWNERSHIP OF  THE  SOFTWARE IS  HEREBY  *
   20       0020  1 !*  TRANSFERRED.                                                      *
   21       0021  1 !*                                                                   *
   22       0022  1 !*  THE INFORMATION IN THIS SOFTWARE IS  SUBJECT TO CHANGE WITHOUT NOTICE  *
   23       0023  1 !*  AND  SHOULD  NOT  BE  CONSTRUED AS  A COMMITMENT BY DIGITAL EQUIPMENT  *
   24       0024  1 !*  CORPORATION.                                                     *
   25       0025  1 !*                                                                   *
   26       0026  1 !*  DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE  OR  RELIABILITY OF ITS  *
   27       0027  1 !*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.          *
   28       0028  1 !*                                                                   *
   29       0029  1 !*                                                                   *
   30       0030  1 !*********************************************************************
   31       0031  1 !
   32       0032  1 !++
   33       0033  1 ! FACILITY:        DSR (Digital Standard RUNOFF) / DSRPLUS
   34       0034  1 !
   35       0035  1 ! ABSTRACT: Processes .END LIST and .END NOTE commands
   36       0036  1 !
   37       0037  1 !
   38       0038  1 ! ENVIRONMENT: Transportable
   39       0039  1 !
   40       0040  1 ! AUTHOR: R.W.Friday    CREATION DATE: January, 1980
   41       0041  1 !
```

ELSEN
V04-000

Revision History

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```
:    43      0042  1 %SBTTL 'Revision History'
:    44      0043  1 !
:    45      0044  1 ! MODIFIED BY:
:    46      0045  1 !
:    47      0046  1 !     008      KAD00008      Keith Dawson     5-July-1983
:    48      0047  1 !          Made default spacing agter a note 1 instead of 2.
:    49      0048  1 !
:    50      0049  1 !     007      KFA00007      Ken Alden       07-Mar-1983
:    51      0050  1 !          Global edit of all modules. Updated module names, idents,
:    52      0051  1 !          copyright dates. Changed require files to BLISS library.
:    53      0052  1 !
:    54      0053  1 !--
```

ELSEN
V04-000   Module Level Declarations

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```
    56        0054  1  %SBTTL 'Module Level Declarations'
    57        0055  1
    58        0056  1  !
    59        0057  1  !  TABLE OF CONTENTS:
    60        0058  1  !
    61        0059  1  !
    62        0060  1  !  INCLUDE FILES:
    63        0061  1  !
    64        0062  1
    65        0063  1  LIBRARY 'NXPORT:XPORT';             ! XPORT Library
    66        0064  1  REQUIRE 'REQ:RNODEF';               ! RUNOFF variant definitions
    67        0195  1
    68     U  0196  1  %IF DSRPLUS %THEN
    69     U  0197  1  LIBRARY 'REQ:DPLLIB';               ! DSRPLUS BLISS Library
    70        0198  1  %ELSE
    71        0199  1  LIBRARY 'REQ:DSRLIB';               ! DSR BLISS Library
    72        0200  1  %FI
    73        0201  1
    74        0202  1  !
    75        0203  1  !  MACROS:
    76        0204  1  !
    77        0205  1  !
    78        0206  1  !  EQUATED SYMBOLS:
    79        0207  1  !
    80        0208  1
    81        0209  1  LITERAL
    82        0210  1      LFSPAC = 1,                     !Spacing after end of a list
    83        0211  1      NFSPAC = 1;                     !Spacing after end of a note
    84        0212  1
    85        0213  1  !
    86        0214  1  !  OWN STORAGE:
    87        0215  1  !
    88        0216  1  !
    89        0217  1  !  EXTERNAL REFERENCES:
    90        0218  1  !
    91        0219  1
    92        0220  1  EXTERNAL
    93        0221  1      FNCT : FNCT_DEFINITION,
    94        0222  1      GCA : GCA_DEFINITION,
    95        0223  1      LSTCNT : REF COUNTED_LIST,      !.LIST ELEMENT counters and controls.
    96        0224  1      NUMPRM : NUMPRM_DEFINE,
    97        0225  1      PHAN : PHAN_DEFINITION,
    98        0226  1      SCA : SCA_DEFINITION;
    99        0227  1
   100        0228  1  !
   101        0229  1
   102        0230  1  EXTERNAL LITERAL                    !Error messages
   103        0231  1      RNFIFT,
   104        0232  1      RNFINM;
   105        0233  1
   106        0234  1  EXTERNAL ROUTINE
   107        0235  1      ERMA,
   108        0236  1      GCPOS,
   109        0237  1      GCSKIP,
   110        0238  1      STKFRM;
   111        0239  1
```

```
 113    0240  1  GLOBAL ROUTINE ELSEN (HANDLER_CODE) : NOVALUE =
 114    0241  1
 115    0242  1  !++
 116    0243  1  ! FUNCTIONAL DESCRIPTION:
 117    0244  1  !
 118    0245  1  !     See ABSTRACT, above.
 119    0246  1  !
 120    0247  1  ! FORMAL PARAMETERS:
 121    0248  1  !
 122    0249  1  !     HANDLER_CODE indicates which command is to be processed.
 123    0250  1  !
 124    0251  1  ! IMPLICIT INPUTS:
 125    0252  1  !
 126    0253  1  !     NUMPRM contains a number, as processed by GETNUM.
 127    0254  1  !
 128    0255  1  ! IMPLICIT OUTPUTS:     None
 129    0256  1  !
 130    0257  1  ! ROUTINE VALUE:
 131    0258  1  ! COMPLETION CODES:     None
 132    0259  1  !
 133    0260  1  ! SIDE EFFECTS: None
 134    0261  1  !
 135    0262  1  !--
 136    0263  1
 137    0264  2      BEGIN
 138    0265  2      LOCAL
 139    0266  2          DEFAULT_SPACING,
 140    0267  2          FINAL_SPACING;
 141    0268
 142    0269  2      !Pop the .LIST and .NOTE stack.
 143    0270  2      IF  NOT STKFRM (.HANDLER_CODE)
 144    0271  2      THEN
 145    0272  2          RETURN;                        !Stack underflow, etc
 146    0273
 147    0274  2      !Set up default .END xxxx spacing.
 148    0275  2      SELECTONE .HANDLER_CODE OF
 149    0276  2          SET
 150    0277
 151    0278  2          [H_END_NOTE] :
 152    0279  3              BEGIN
 153    0280  3              DEFAULT_SPACING = NFSPAC*.SCA_SPACING;
 154    0281  2              END;
 155    0282
 156    0283  2          [H_END_LIST] :
 157    0284  3              BEGIN
 158    0285  3              DEFAULT_SPACING = LFSPAC*.SCA_SPACING;
 159    0286  3              !Drop back one level in list counters.
 160    0287  3              LSTCNT [CL_INDEX] = .LSTCNT [CL_INDEX] - 1;
 161    0288  2              END;
 162    0289
 163    0290  2          TES;
 164    0291
 165    0292  2      !General coding for both .END LIST and .END NOTE.
 166    0293
 167    0294  2          !Generate final spacing after list
 168    0295  3          IF (NOT .NUM_RESULT)             !If the number is bad,
 169    0296  3              OR (.NUM_LENGTH EQL 0)        !or no number was specified,
```

ELSEN
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```
170   0297  2              THEN
171   0298  2                  !Use default .END xxxx spacing.
172   0299  2                  FINAL_SPACING = .DEFAULT_SPACING
173   0300  2              ELSE
174   0301  2                  !User has specified the .END xxxx skip.
175   0302  2                  !Validate it and then do it.
176   0303  2                  BEGIN
177   0304  3                  FINAL_SPACING = .NUM_VALUE*.SCA_SPACING;           !Convert to .SPACING lines.
178   0305  3
179   0306  3                  IF .FINAL_SPACING LSS 0
180   0307  3                  THEN                                  !
181   0308  3                      !User said something like .END xxxx -5,
182   0309  3                      !which means to position to 5 lines from the
183   0310  3                      !bottom.
184   0311  3                      IF .FNCT_COLLECTING               !This is TRUE if user is inside a footnote.
185   0312  3                      THEN                              !
186   0313  4                          BEGIN                         !.END xxxx with negative value is illegal in a footnote.
187   0314  4                          ERMA (RNFIFT, FALSE);
188   0315  4                          FINAL_SPACING = .DEFAULT_SPACING
189   0316  4                          END
190   0317  3                      ELSE                              !
191   0318  3
192   0319  3                          IF ABS (.FINAL_SPACING) GEQ .PHAN_LLINES
193   0320  3                          THEN                          !
194   0321  3                                                        !User said something like .END xxxx -9999.
195   0322  4                              BEGIN
196   0323  4                              !Complain to the user
197   0324  4                              ERMA (RNFINM, FALSE);
198   0325  4                              !Use default spacing instead of erroneous spacing
199   0326  4                              FINAL_SPACING = .DEFAULT_SPACING
200   0327  4                              END
201   0328  3
202   0329  3                          ELSE
203   0330  3                              !It's a valid negative skip
204   0331  4                              BEGIN
205   0332  4                              GCPOS(.NUM_VALUE);
206   0333  4                              RETURN
207   0334  4                              END
208   0335  2                  END;
209   0336  2
210   0337  2
211   0338  2          !If we arrive here, it's either .END xxxx with no skip specified,
212   0339  2          !or else the skip is a positive skip.
213   0340  2          !Bad skip specifications continue here too.
214   0341  2
215   0342  2
216   0343  2          !Check for .END xxxx 0
217   0344  2          IF .FINAL_SPACING NEQ 0
218   0345  2          THEN
219   0346  2              !SCA_SPACING is subtracted off because when ENDCHR gets
220   0347  2              !called again (eventually) it will add that many blank
221   0348  2              !lines.
222   0349  2              GCSKIP ( MAX(1, .FINAL_SPACING - (.SCA_SPACING - 1)) );
223   0350  2
224   0351  1      END;                                              !End of ELSEN
```

ELSEN
V04-000

Module Level Declarations

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```
                                        .TITLE   ELSEN
                                        .IDENT   \V04-000\

                                        .EXTRN   FNCT, GCA, LSTCNT
                                        .EXTRN   NUMPRM, PHAN, SCA
                                        .EXTRN   RNFIFT, RNFINM, ERMA
                                        .EXTRN   GCPOS, GCSKIP, STKFRM

                                        .PSECT   $CODE$,NOWRT,2

                              003C 00000        .ENTRY   ELSEN, Save R2,R3,R4,R5
          55 00000000G EF 9E 00002               MOVAB    NUMPRM+4, R5             ; 0240
          54 00000000G EF 9E 00009               MOVAB    SCA+124, R4
          52       04 AC D0 00010               MOVL     HANDLER_CODE, R2          ; 0270
                   52 DD 00014               PUSHL    R2
   00000000G EF    01 FB 00016               CALLS    #1, STKFRM
          01       50 E8 0001D               BLBS     R0, 1$
                   04 00020               RET
          3D       52 D1 00021 1$:       CMPL     R2, #61                          ; 0278
          06       12 00024               BNEQ     2$
          53       00 B4 D0 00026               MOVL     @SCA+124, DEFAULT_SPACING  ; 0280
          13       11 0002A               BRB      3$                               ; 0275
          3B       52 D1 0002C 2$:       CMPL     R2, #59                          ; 0283
          0E       12 0002F               BNEQ     3$
          53       00 B4 D0 00031               MOVL     @SCA+124, DEFAULT_SPACING  ; 0285
          50 00000000G EF D0 00035               MOVL     LSTCNT, R0                ; 0287
                04 A0 D7 0003C               DECL     4(R0)
          3D       FC A5 E9 0003F 3$:       BLBC     NUMPRM, 7$                    ; 0295
                08 A5 D5 00043               TSTL     NUMPRM+12                     ; 0296
                38 13 00046               BEQL     7$
52        65    00 B4 C5 00048               MULL3    @SCA+124, NUMPRM+4, FINAL_SPACING ; 0304
          40       18 0004D               BGEQ     9$                               ; 0306
          0A 00000000G EF E9 0004F               BLBC     FNCT+20, 4$               ; 0311
          7E       D4 00056               CLRL     -(SP)                            ; 0314
   00000000G 8F DD 00058               PUSHL    #RNFIFT
          19       11 0005E               BRB      6$
          50       52 D0 00060 4$:       MOVL     FINAL_SPACING, R0                 ; 0319
          03       18 00063               BGEQ     5$
          50       50 CE 00065               MNEGL    R0, R0
   00000000G FF    50 D1 00068 5$:       CMPL     R0, @PHAN+4
          14       19 0006F               BLSS     8$
          7E       D4 00071               CLRL     -(SP)                            ; 0324
   00000000G 8F DD 00073               PUSHL    #RNFINM
   00000000G EF    02 FB 00079 6$:       CALLS    #2, ERMA
          52       53 D0 00080 7$:       MOVL     DEFAULT_SPACING, FINAL_SPACING    ; 0326
          0A       11 00083               BRB      9$
          65       DD 00085 8$:       PUSHL    NUMPRM+4                             ; 0332
   00000000G EF    01 FB 00087               CALLS    #1, GCPOS
                04 0008E               RET                                          ; 0331
          14       13 0008F 9$:       BEQL     11$                                  ; 0344
          52       00 B4 C2 00091               SUBL2    @SCA+124, R2              ; 0349
                52 D6 00095               INCL     R2
                52 DD 00097               PUSHL    R2
          03       14 00099               BGTR     10$
          6E       01 D0 0009B               MOVL     #1, (SP)
   00000000G EF    01 FB 0009E 10$:      CALLS    #1, GCSKIP
                04 000A5 11$:      RET                                              ; 0351
```

ELSEN
V04-000   Module Level Declarations

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; Routine Size: 166 bytes,   Routine Base: $CODE$ + 0000

; 225   0352 1
; 226   0353 1 END   !End of module
; 227   0354 0 ELUDOM

;   PSECT SUMMARY

;
;   Name   Bytes   Attributes
;
; $CODE$ 166 NOVEC,NOWRT, RD , EXE,NOSHR, LCL, REL, CON,NOPIC,ALIGN(2)

;   Library Statistics
;
;   -------- Symbols --------   Pages   Processing
;   File   Total   Loaded   Percent   Mapped   Time
;
;   _255DUA28:[SYSLIB]XPORT.L32;1   590   0   0   252   00:00.1
;   _255DUA28:[RUNOFF.SRC]DSRLIB.L32;1 1248   19   1   86   00:00.3

;   COMMAND QUALIFIERS

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

; Size: 166 code + 0 data bytes
; Run Time: 00:04.7
; Elapsed Time: 00:15.4
; Lines/CPU Min: 4548
; Lexemes/CPU-Min: 11678
; Memory Used: 55 pages
; Compilation Complete