

PROGRAM NAME: COMPRES

LOWER BLOCK NUMBER: 2

UPPER BLOCK NUMBER: 100

COMPRESS as of 2/26/74

```
UNCTION FRONT\END()  
VECTOR APL\DATA[177777B EXTERNAL 1]  
VECTOR APL\USER[177777B EXTERNAL 2]  
SCALAR C  
STRING S[50 8 BIT]  
FIELD RIGHT(0:16,31)  
CRLF(1)  
OPEN\WINDOWED(1,"$APL":SOUT("DATSEG $APL NOT OPEN\WINDOWED-ABLE")&FRETURN)  
SOUT("TYPE USER SEGMENT NAME: ")  
SETS(S,0,0)  
WHILE '&155' # (C_CIN()) DO  
    WCI(C,S)  
ENDWHILE  
OPEN\WINDOWED(2,S: SOUT("&152USRSEG NOT OPEN\WINDOWED-ABLE") & FRETURN)  
CONCENTRATE\ARRAYS(APL\DATA, APL\USER[3]$RIGHT-1)  
CLOSE (1) & CLOSE (2)  
RETURN  
END
```

FUNCTION CONCENTRATE\ARRAYS(VECTOR DATA, ENDGLOBAL)

CONCENTRATE\ARRAYS SQUEEZES TOGETHER ALL APL ARRAYS IN THE "DATA" PARAMETER. AFTER SUCCESSFUL COMPLETION, THE FIRST APL ARRAY STARTS JUST PAST THE LAST GLOBAL VARIABLE, WHICH IS ASSUMED TO BE DATA[ENDGLOBAL].

"SLOP" FOR ANY ARRAY BLOCK EXCEPT THE LAST ONE IS COMPRESSED AWAY. IF THERE IS ROOM, EXACTLY ONE FREE BLOCK IS CREATED BETWEEN THE LAST ARRAY BLOCK AND THE 'DUMMY' FREE BLOCK. OTHERWISE, WHAT ROOM THERE IS BECOMES THE "SLOP" OF THE LAST ARRAY BLOCK. THE NUMBER OF WORDS IN THE OPTIONALLY CREATED FREE BLOCK EQUALS THE NUMBER OF WORDS THAT USED TO BE "SLOP" PLUS THE NUMBER OF WORDS THAT USED TO BE IN FREE BLOCK(S).

GLOBAL & LOCAL VARIABLES THAT DESCRIBE ARRAYS HAVE THEIR ADDRESS FIELDS UPDATED.

FAILURE OCCURS WHEN ANY ARRAY BLOCK REFERENCE COUNT DOES NOT EQUAL THE NUMBER OF VARIABLES THAT DESCRIBE IT. SINCE FAILURE INDICATES A GRAVE SYSTEM ERROR, THE OFFENDING PROCESS SHOULD NOT RESUME EXECUTION.

FIELD THISFREE(0:0,0), PREVFREE(0:1,1), SLOP(0:2,7)
FIELD INTRPT(0:8,8); * 1=>MIDDLE OF AN ARRAY OPERATION
FIELD LEFT(0:0,15),RIGHT(0:16,31)
SCALAR FROM,TOO,ARRAYFROM,ARRAYSIZE,STOP,SBASE
SCALAR LASTTO,COUNT,J,K

IF DATA[1]\$INTRPT THEN (CRLF(1) & SOUT("FLAGS\$INTRPT=1") & FRETURN)

STOP_DATA[0]\$RIGHT+(SBASE_DATA[0]\$LEFT)
TOO_FROM_ENDGLOBAL+1

WHILE 0 < (ARRAYSIZE_DATA[FROM]\$RIGHT) DO

IF DATA[FROM]\$THISFREE THEN; * FREE BLOCK
FROM_FROM+ARRAYSIZE

ELSE; COUNT_0; * ARRAY BLOCK

ARRAYFROM_4000B@LEFT+FROM

J_8 & K_ENDGLOBAL; * EXTENTS OF GLOBAL VARIABLES

LOOK: FOR I_J TO K DO

IF DATA[I]=ARRAYFROM THEN; * UPDATE ARRAY DESCRIPTOR ADDRESS

COUNT_COUNT+1

DATA[I]\$RIGHT_TOO

ENDIF

ENDFOR

IF J=8 THEN (J_SBASE+1 & K_STOP & GOTO LOOK); * LOCAL VAR. EXTENTS

IF COUNT#DATA[FROM+1]\$LEFT THEN (CRLF(1)&SOUT("BAD REFCOUNT")&FRETURN)

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LASTTO_TOO
FOR I_1 TO ARRAYSIZE DO
    DATA[(TOO_TOO+1)-1] _ DATA[(FROM_FROM+1)-1]
ENDFOR
FROM_FROM+DATA[LASTTO]$SLOP
DATA[LASTTO]$PREVFREE _ (DATA[LASTTO]$SLOP_0)

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ENDIF
ENDWHILE

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IF 5 > (I_FROM-TOO) THEN; * ADD SLOP TO LAST ARRAY
    DATA[LASTTO]$SLOP_I
    TOO_FROM
ENDIF

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* AT THIS POINT, DATA[FROM] IS THE BEGINNING OF "DUMMY" FREE BLOCK

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DATA[6]$LEFT_TOO; * R O V E R
DATA[FROM+1]$LEFT _ (DATA[FROM+1]$RIGHT_TOO); * DOUBLY LINKED. . .
DATA[TOO+1]$LEFT _ (DATA[TOO+1]$RIGHT_FROM) ; * . . .FREE LIST

```

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DATA[TOO]$RIGHT_FROM-TOO; * LENGTH OF NEWLY CREATED FREE BLOCK

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DATA[TOO]$THISFREE _ (TOO < FROM); * TOO=FROM IMPLIES 'DUMMY' FREE BLOCK
RETURN

```

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END

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