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PROGRAM LIBRARY

DECUS NO.	8-731
TITLE	MEMO IV
AUTHOR	Gregory Ruth
COMPANY	Charles Stark Draper Laboratory Cambridge, Massachusetts
DATE	October 4, 1974
SOURCE LANGUAGE	PAL-8

ATTENTION

This is a USER program. Other than requiring that it conform to submittal and review standards, no quality control has been imposed upon this program by DECUS.

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GENERAL INFORMATION

Object Computer(s) Family of 8 Source Computer (if different) _____
File Name MEMO IV Version No. _____
Title MEMO IV
Author Gregory Ruth
Submitter (if other than author) _____
Affiliation Charles Stark Draper Laboratory
Address 68 Albany Street
Cambridge, Massachusetts 02139 Country USA
Monitor/Operating System PS/8 or OS/8 DEC No. _____
Core Storage Required 0-5377₈ Starting Address _____
Peripherals Required None in addition to standard OS/8 configuration
Other Software Required None DEC or DECUS No. _____
Source Language PAL-8 Category Text Editing, Text Manipulation
Restrictions, Deficiencies, Problems None

Date of Planned or Possible Future Revisions _____

TAPES AVAILABLE

Paper Tapes Object Binary ☐ Object ASCII ☐ Source ☐ Other _____
DECtape ☒ LINCtape ☐ Format OS/8 Magtape: 7 Track ☐ 9 Track ☐ BPI _____
Object Files ☒ Source Files ☒ Documentation Files ☐ Other _____

ABSTRACT

MEMO IV is a program written for the OS/8 system to produce right and left-justified paged text from free form text. The intention is to permit the user to produce a readable and neatly formatted document with minimal effort. This is a descendant of earlier programs MEMO and MEMO II. This version adds several new features, most notably the capability for directing output to any OS/8 compatible device (rather than restricting it to the teletype. Files written for previous versions of MEMO are compatible with MEMO IV.

MEMO IV

DECUS Program Library Write-up

DECUS NO. 8-731

INTRODUCTION

MEMO IV IS A PROGRAM WRITTEN FOR THE OS/8 SYSTEM TO PRODUCE PAGED TEXT WITH MARGINS FROM FREE FORM TEXT. THE INTENTION IS TO PERMIT THE USER TO PRODUCE A READABLE AND NEATLY FORMATTED COPY OF TEXT WITH MINIMAL EFFORT. THE IDEA FOR THIS PROGRAM IS BORROWED FROM A PROGRAM NAMED RUNOFF WHICH RUNS ON MULTICS (A LARGE COMMUNITY TIME SHARING SYSTEM AT M. I. T.) THE PROGRAM HERE USES SIMILAR, BUT NOT IDENTICAL, COMMANDS AND UNDERLYING PRINCIPLES.

MEMO IV IS A DESCENDENT OF MY ORIGINAL TEXT FORMATTING PROGRAMS, MEMO AND MEMO II. IT INCLUDES SEVERAL NEW FEATURES AND CORRECTS MANY BUGS. MOST NOTABLY, THIS VERSION ALLOWS THE OUTPUT STREAM TO BE DIRECTED TO ANY OS/8 COMPATIBLE DEVICE (FORMERLY OUTPUT WAS DIRECTED TO THE TELETYPE ONLY). FILES WRITTEN FOR MEMO AND MEMO II ARE COMPATIBLE WITH MEMO IV.

REQUIREMENTS

MEMO IV, TOGETHER WITH ITS BUFFERS, OCCUPIES LOCATIONS 0-5377. THE MINIMUM EQUIPMENT IS THAT FOR THE OS/8 PROGRAMMING SYSTEM, VIZ. A PDP-8, 8I, OR 8E, ASR-33 (OR EQUIVALENT), AND EITHER DECTAPE OR DISK (IF THE SYSTEM DEVICE IS A DISK, IT MUST HAVE AT LEAST 96K WORDS AND EITHER A DECTAPE OR A HIGH SPEED PAPER TAPE READER/PUNCH).

USAGE

THE STARTING ADDRESS IS 200. IT IS NOT ADVISABLE TO RESTART THE PROGRAM AS THE RESULTS WOULD BE UNPREDICTABLE. MEMO IV USES THE USR (USER SERVICE ROUTINE) TO CALL THE COMMAND DECODER. THE CD PRINTS AN ASTERISK ('*') AND THE USER TYPES THE OUTPUT FILE SPECIFICATION (DEVICE AND NAME), A BACK-ARROW, AND THE INPUT FILE SPECIFICATION AS USUAL, WITH OPTIONS AS EXPLAINED BELOW. THE HANDLERS FOR THE INPUT AND OUTPUT DEVICES ARE THEN READ IN, VIA THE USR. TWO PAGES IN CORE ARE PROVIDED FOR EACH HANDLER.

THE FILE IS READ IN, TWO PAGES (ONE BLOCK) AT A TIME, AS TEXT IS NEEDED.

DESCRIPTION

MEMO IV ACCEPTS AS INPUT AN ANSCII FILE CREATED BY EDIT (OR A FILE WITH EXACTLY THE SAME INTERNAL FORMAT). THE INPUT FILE CONSISTS OF COMMANDS AND TEXT. THE PURPOSE OF THE COMMANDS IS TO SPECIFY FORMATTING INFORMATION TO MEMO IV. ONLY ONE COMMAND OR A COMMAND AND ITS ARGUMENT MAY APPEAR ON EACH LINE, AT

THE BEGINNING OF THAT LINE (THE REST OF THE LINE IS IGNORED). EACH COMMAND MUST BE IMMEDIATELY PRECEDED BY A PERIOD ('.'). SOME COMMANDS HAVE OPTIONAL ARGUMENTS. IF PRESENT, THE ARGUMENT MAY DIRECTLY FOLLOW THE COMMAND OR ANY NUMBER OF SPACES MAY INTERVENE. IF THE ARGUMENT IS NOT PRESENT, THE DEFAULT VALUE IS USED. THE COMMANDS, THEIR ARGUMENTS, AND THEIR DEFAULT VALUES ARE LISTED BELOW.

UNLESS OTHERWISE SPECIFIED (BY COMMANDS), TEXT IS PRINTED RIGHT AND LEFT JUSTIFIED AND PACKED AS DENSELY IN LINES AS POSSIBLE. THE USER MAY INSERT THE CHARACTER "~" IN ANY WORD TO SHOW WHERE SYLLABICATION IS POSSIBLE. THE UP-ARROW WILL NOT APPEAR IN THE OUTPUT. THIS IS ESPECIALLY USEFUL FOR LARGE WORDS (OTHERWISE THEY MIGHT NOT FIT ON THE END OF A LINE AND THUS CAUSE THE DISTRIBUTION OF WORDS IN THAT LINE TO BE VERY SPARSE). THIS FEATURE MAY BE USED EXTENSIVELY (E.G. FOR SHORT LINE LENGTHS) OR NOT AT ALL (E.G. FOR TYPICAL LINE LENGTHS AND FEW LONG WORDS). IN ANY CASE, MEMO IV AUTOMATICALLY SYLLABICATES HYPHENATED WORDS (E.G. STAND-BY).

AN EMPTY LINE OR LINES OR A LINE BEGINNING WITH INDENTATION (SPACES OR A TAB) WILL CAUSE A BREAK IN THE PRECEDING TEXT, AND THE START OF A NEW LINE. PAGING IS AUTOMATIC.

PAGINATION OF THE INPUT FILE MAY BE USED FREELY.

DURING OUTPUT THE EXECUTION OF MEMO IV MAY BE INTERRUPTED AT ANY TIME BY TYPING CTRL-C. THIS WILL RETURN CONTROL TO THE OS/8 MONITOR.

TABLE 1: OPTIONS

<u>Option</u>	<u>Meaning</u>
/W	Wait before output; the user types a carriage return when ready.
/S	Stop and wait after each page; the user types a carriage return when ready.
/P	Partial printout; the user will be asked "FROM" (answered by typing the number of the first page to be printed out; default is page 1) and "TO" (answered by typing the number of the last page to be printed out; default is the last page.)

TABLE 2: IN-TEXT COMMANDS

<u>Command</u>	<u>Implied Break</u>	<u>Default</u>	<u>Meaning</u>
.BP	X		Begin a new page
.BR	X		Break (begin a new line)
.CEn	X	n= 1	Center the next n lines
.DS		no	Double space
.EPn		n= 1	Emit n pages (skip n page numbers)
.INn		n= 0	Indent left margin n spaces
.LLn		n= 65	Line length = n characters
.NEn		n= 1	Need n lines if single space, 2n lines if double space; if there are not enough left on this page, then begin a new page.
.NLn		n= 66	Number of lines per page (including 6 lines each for top and bottom margins) is n.
.NP			Stop printing page numbers
.PF		no	Type page numbers at the foot of each page

<u>Command</u>	<u>Implied Break</u>	<u>Default</u>	<u>Meaning</u>
.PF2		no	Same as PF starting with the second page
.PH		no	Type page numbers at the head of each page
.PH2		yes	Same as PH starting with the second page
.RM	X		Restore margins (used after SQn)
.SPn	X	n= 1	Space n lines
.SS		yes	Single space
.SQn	X	n= 0	Squeeze margins n spaces on each side
.TBn		n= 7	Translate TAB (ctrl-I) to n spaces
.TRab			Replace every occurrence of character a by character b in the output. This command may be made several times but the indicated translation of any particular character "a" cannot be changed.

NOTES ON TECHNIQUE

1. NE IS TYPICALLY USED BEFORE (1) A FORMULA, TABLE, DIAGRAM, ETC., SO THAT IT WILL NOT BE BROKEN UP BY THE PAGING. (2) BEFORE AN SP THAT IS SAVING BLANK SPACE FOR SUCH A THING, OR (3) BEFORE A SUBJECT HEADING SO THAT IT WILL NOT BE SEPARATED FROM ITS FOLLOWING PARAGRAPH (I.E. SO THAT THE SUBJECT HEADING WILL NOT APPEAR AT THE BOTTOM OF ONE PAGE AND THE PARAGRAPH AT THE TOP OF THE NEXT).
2. IN OR IN0 UNDOES A PREVIOUS INDENTATION.
3. EP INCREMENTS THE PAGE NUMBER SO THAT A NON-MEMO PAGE CAN BE INSERTED IN MEMO OUTPUT WITHOUT DISTURBING THE PAGE NUMBERING. FOR EXAMPLE, SUPPOSE THAT THE USER WISHES TO INCLUDE A GRAPH IN HIS MEMO AND THAT HE WANTS THE GRAPH TO BE ON A SEPARATE PAGE RIGHT AFTER THE FIRST REFERENCE TO IT. IN THE RAW TEXT HE SHOULD INCLUDE AN EP COMMAND NEAR THE FIRST REFERENCE. THEN, IF THAT REFERENCE IS ON, SAY, PAGE 5, THE NEXT PAGE WILL BE NUMBERED 7 SO THAT THE GRAPH CAN BE PAGE 6.
4. TABLES AND FIGURES THAT WILL OCCUPY SEPARATE PAGES AND CAN BE PRODUCED BY MEMO ARE BEST PUT AT THE END OF THE RAW TEXT AND PRECEDED BY AN NP TO TURN THE PAGE NUMBER PRINTING MECHANISM OFF.
5. TR (TRANSLATE) HAS A NUMBER OF USES (AND ABUSES). TO HAVE THE CHARACTER ^ APPEAR IN TEXT, PICK A CHARACTER SUCH AS @ AND INCLUDE

.TR@^

THEN WHEREVER ^ IS DESIRED TYPE @ IN THE RAW COPY. TO AVOID HAVING EXPRESSIONS AND THE LIKE BROKEN UP WHERE SPACES OCCUR

IN THEM, SPECIFY THAT SOME UNUSED CHARACTER, SAY &, BE TRANSLATED TO SPACE AND TYPE A&+&B INSTEAD OF A + B. THIS CAN ALSO BE USED TO PREVENT THE JUSTIFIER FROM INSERTING EXTRA SPACES WHERE THEY ARE NOT WANTED. BREAKS AT HYPHENS (E. G. IN A-B) CAN BE PREVENTED IN A SIMILAR WAY.

6. THE ACCOMPANYING RAW TEXT OF THIS MEMO PROVIDES SEVERAL EXAMPLES.

GRR/PDP8 M6

.TRZ
 .TR \$"
 .PH2
 .DS
 .CE 3
 CHARLES STARK DRAPER LABORATORY
 CONSOLIDATED COMPONENTS DEPARTMENT
 MEMORANDUM

TO: THE DECUS COMMUNITY
 .BR
 FROM: G. RUTH
 .BR
 DATE: OCTOBER 4, 1974
 .BR
 SUBJECT: "MEMO IV"

INTRODUCTION

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. IN

GRR/PDP8

M6