



DECUS

PROGRAM LIBRARY

DECUS NO.	8-318
TITLE	PART (Partitioning of Treatment Sums of Squares)
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SOURCE LANGUAGE	FORTRAN D

ABSTRACT

This program is designed to enable the treatment sum of squares from an experimental design to be partitioned into any desirable set of orthogonal or non-orthogonal comparisons. The treatment effect, and the variance ratio, are also computed for each comparison.

TAPES REQUIRED

1. Form of program tape - The program tape is written in the PDP-8 FORTRAN-D language, and is in the source language.

2. Form of data tape - The data tape should contain, first, the means of the treatments to be included in the comparisons and residual sum of squares. These means and the residual sum of squares will usually have been calculated on some other program, and can be derived from the output by the use of the EDIT facility. On a separate data tape, the matrix of comparison vectors should be punched by columns. It will be generally desirable that these comparisons are orthogonal, but it is not essential. Each comparison must, however, have only one degree of freedom.

OPERATING INSTRUCTIONS

.FORT	Program in high-speed reader
*OUT-S:PART	
*	
*IN-R:	
* ↑	
↑	Data tape in low-speed reader
*READY	Comparison matrix in high-
↑	speed reader

The program will request the entry of the numbers of means, replicates, and contrasts. These should be entered in sequence on the teletype, and terminated by "Return."

If the program has already been compiled onto the disk, it may be called back into core as follows:

.FOSL
*IN-S:PART
*

*OPT-

* ↑

*READY

↑

Data tape in low-speed reader
Comparison matrix in high-speed
reader

OUTPUT

For each of the selected partitions, the program prints the mean effect, the sum of squares associated with the effect, and the variance ratio test of the significance of the effect, i.e. the sum of squares divided by the residual mean square.

STORAGE AND LIMITATIONS

Normal for FORTRAN-D

For the 4K version, the number of means must be less than or equal to 72, and the number of coefficients in the contrasts similarly less than or equal to 72. There is no limit to the number of comparisons.

METHOD

See any statistical text, for example, "Statistical Methods" by G. Snedecor.

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PROGRAM TO PARTITION SUM OF SQUARES

DIMENSION DATA(72),V(72)

TYPE 100

100

FORMAT (/,"ENTER NOS OF MEANS, REPLICATES, AND CONTRASTS",/,/,/)

ACCEPT 101,N,NR,NC

101

FORMAT (I,I,I)

RN=NR

DO 1 I=1,N

READ 1,102,DATA(I)

1

CONTINUE

102

FORMAT (/ ,E,E,E)

READ 1,102,RES

DO 2 I=1,NC

SS=0.0

SP=0.0

DO 3 J=1,N

READ 2,102,V(J)

SS=SS+DATA(J)*V(J)

SP=SP+V(J)*V(J)

3

CONTINUE

SS=RN*SS

EF=SS/(RN*SP)

SS=(SS*SS)/(RN*SP)

FR=SS/RES

TYPE 102,EF,SS,FR

2

CONTINUE

END

*

