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DECUS NO.	FOCAL8-66
TITLE	QUICK SCAN-USING SCHEFF'S CALCULATION
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SOURCE LANGUAGE	FOCAL

### ATTENTION

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Name: "Quick Scan" using Scheffé's calculation

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Category: Statistics

Language: FOCAL

Abstract: This program is a modification of "SHEFFÉ'S Contrast Between Means" (FOCAL - 16), and is designed to be used in conjunction with FOCAL - 16, or with Decus 5/8-9. Using the output from an analysis of variance calculation, it quickly supplies the user with a general picture of the significance of group mean differences, at any selected F level.

Description: "Quick Scan" individually compares the mean of each group to the mean of every other group. In each case, it performs the Scheffé calculation, and then multiplies  $(H+XX)*(H-XX)$ . If a negative number is obtained, then zero lies between these two values and they are not significantly different. If the value is positive, the means are significantly different.

Once the relationships between group means are known, "SHEFFÉ'S Contrasts Between Means" (FOCAL - 16) may be used to obtain a data printout for individual group mean comparisons or multiple group mean comparisons.

The main advantage of "Quick Scan" is that it does not require the input of the "C" values, which is time consuming when many groups are being compared.

For a description of Scheffé's calculation see:

- (1) H. Scheffé, (1953) A Method for Judging All Contrasts in the Analysis of Variance. Biometrika, 40, 87-104.
- (2) Dr. McKeown's program write-up for FOCAL - 16.

## OPERATION

This program should be run using FOCAL, with extended functions deleted.

### Input:

K = the number of related sample groups, (maximum of 12).

M = the mean of a group.

N = the number of samples in the group for which the mean was just given, (i.e. M:, N:, M:, N:, etc.).

S = the pooled variance.  
(FOCAL - 16: MSW)  
(DECUS 5/8-9: Variance Within Samples)

F = the F-statistic from the F Distribution Tables.  
(FOCAL - 16: f1 = DFB; f2 = DFW)  
(DECUS 5/8-9: f1 = DF Between Samples; f2 = DF Within Samples)

### Output:

The output is in the form of a table. "N" indicates that the difference between the two intersecting samples is not significant. "\*" indicates that there is a significant difference.

After the table has been typed out, the computer asks "New F?". This is answered with Y (yes) or N (no). If Y is typed, the computer will ask "F:", and the new F value must be typed in. The table will again be printed out, using the new F value. If N is typed the computer will type "Goodbye" and quit.

SAMPLE OUTPUT

\*G

K:8

M:0.061 N:9 M:0.483 N:10

M:0.942 N:9 M:7.280 N:10

M:12.116 N:10 M:16.342 N:10

M:20.030 N:8 M:16.989 N:10

S:32.39889

F:2.17

GR.#	=	2	=	3	=	4	=	5	=	6	=	7	=	8
= 1		N		N		N		*		*		*		*
= 2		.		N		N		*		*		*		*
= 3		.		.		N		*		*		*		*
= 4		.		.		.		N		N		*		N
= 5		.		.		.		.		N		N		N
= 6		.		.		.		.		.		N		N
= 7		.		.		.		.		.		.		N

NEW F? (ANS. Y OR N): Y

F:2.95

GR.#	=	2	=	3	=	4	=	5	=	6	=	7	=	8
= 1		N		N		N		*		*		*		*
= 2		.		N		N		*		*		*		*
= 3		.		.		N		N		*		*		*
= 4		.		.		.		N		N		*		N
= 5		.		.		.		.		N		N		N
= 6		.		.		.		.		.		N		N
= 7		.		.		.		.		.		.		N

NEW F? (ANS. Y OR N): N

GOODBYE

\*

"QUICK SCAN" - USING SCHEFFE'S CALCULATION

C-FOCAL , 8/68

Ø1.Ø1	A	"K"K;S J=1
Ø1.Ø2	A	"M"M(J);A "N"N(J)
Ø1.Ø3	I	(K-J)1.Ø5, 1.Ø5, 1.Ø4
Ø1.Ø4	S	J=J+1;G 1.Ø2
Ø1.Ø5	A	"S"S
Ø2.Ø1	A	"F"XF; T !!
Ø2.Ø2	T	"GR.#"; F Z=2, 1, K;T %2 " ", Z
Ø2.Ø3	T	!!
Ø3.Ø1	S	J=1;S P=J+1
Ø3.Ø3	S	C(J)=Ø;S C(P)=Ø
Ø3.Ø4	T	%2 J;S Q=1
Ø3.Ø5	I	(J-Q)3.Ø8, 3.Ø8
Ø3.Ø6	T	" .";S Q=Q+1;G 3.Ø5
Ø3.Ø8	S	C(J)=1;S C(P)=-1
Ø4.Ø1	S	H=Ø;S V=Ø;S SV=Ø
Ø4.Ø2	S	Q=1
Ø4.Ø3	S	H=H+C(Q)*M(Q);S V=V+C(Q)*2*(S/N(Q))
Ø4.Ø4	I	(K-Q)4.Ø6, 4.Ø6, 4.Ø5
Ø4.Ø5	S	Q=Q+1;G 4.Ø3
Ø4.Ø6	S	SV=(K-1)*XF;S XX=FSQT(SV)*FSQT(V)
Ø4.Ø7	S	U=H+XX; S L=H-XX
Ø5.Ø1	T	" "
Ø5.Ø2	I	(L*U)5.Ø3, 5.Ø3, 5.Ø4
Ø5.Ø3	T	" N"; G 5.Ø5
Ø5.Ø4	T	" *"
Ø5.Ø5	I	(K-P)5.Ø7, 5.Ø7
Ø5.Ø6	S	C(P)=Ø;S C(J)=Ø;S P=P+1;G 3.Ø8
Ø5.Ø7	I	(K-(J-1))6.Ø1, 6.Ø1
Ø5.Ø8	S	C(P)=Ø;S C(J)=Ø;S J=J+1;T !!;S P=J+1;I (J-K)3.Ø4
Ø6.Ø1	T	!!!;A "NEW F? (ANS. Y OR N)", AN
Ø6.Ø2	I	(AN-25)6.Ø3, 2.Ø1, 2.Ø1
Ø6.Ø3	T	!!, "GOODBYE", !!;Q
*		