

The Randomized Block ANOVA Table

Data table

b / trt	A1	A2	...	Ak	
1	x11	x12		x13	$\bar{X}_{.1}$
2	x21	x22		x23	$\bar{X}_{.2}$
..	..	..		..	
b	xb1	xb2		xb3	$\bar{X}_{.b}$
	$\bar{X}_{.1}$	$\bar{X}_{.2}$		$\bar{X}_{.k}$	$\bar{\bar{X}}$

$$SSTR = \sum_j n_j (\bar{X}_{.j} - \bar{\bar{X}})^2$$

$$SSB = k \sum_i (\bar{X}_{i.} - \bar{\bar{X}})^2$$

$$SSE = \sum_j \sum_i (X_{ij} - \bar{X}_{i.} - \bar{X}_{.j} + \bar{\bar{X}})^2 = SST - SSTR - SSB$$

$$SST = \sum_j \sum_i (X_{ij} - \bar{\bar{X}})^2$$

ANOVA Table

source	ssq	df	ms	F
treatment	SSTR	(k-1)	MSTR	MSTR/MSE
block	SSB	(b-1)	MSB	MSB/MSE
error	SSE	(k-1)(b-1)	MSE	
total	SST	n-1		

F-statistic

$$F = \frac{SSTR/(c-1)}{SSE/(n-c)} = \frac{MSTR}{MSE}$$