

## 5. Analisis Varians Klasifikasi Dua Arah

Bentuk rancangannya, rancangan (acak) kelompok = Randomized Complete Block Design

Model matematikanya

$$Y_{ij} = \mu - \alpha_i + \beta_j + \epsilon_{ij}$$

Hasil pengamatan

Perlakuan (A)	Kelompok (B)			
	1	2	...	B
1	$y_{11}$	$y_{12}$	...	$y_{1b}$
2	$y_{21}$	$y_{22}$	...	$y_{2b}$
...	...	...	...	...
a	$y_{a1}$	$y_{a2}$	...	$y_{ab}$

$$JKT = \sum_{i=1}^a \sum_{j=1}^b (y_{ji} - \bar{y}_{..})^2 = \sum_{i=1}^a \sum_{j=1}^b y_{ij}^2 - \frac{T_{..}^2}{ab}; db = ab - 1$$

$$JKA = b \sum_{i=1}^a (\bar{y}_i - \bar{y}_{..})^2 = \frac{\sum_{i=1}^a y_i^2}{b} - \frac{T_{..}^2}{ab}; db = a - 1$$

BINA NUSANTARA

Edisi : 1

Revisi : 0

Feb - 2003

$$JKB = a \sum_{i=1}^a (\bar{y}_i - \bar{y}_{..})^2 = \frac{\sum_{j=1}^b y_j^2}{a} - \frac{T_{..}^2}{ab}; db = b - 1$$

$$JKG = \sum_i \sum_j (y_{ij} - \hat{y}_{ij})^2 = JKT - JKA - JKB, db(a-1)(b-1)$$

$$R^2 = \frac{JKA + JKB}{JKT}$$

Tabel Analisis Varians (Klasifikasi Dua Arah)

Sumber Variansi	Jumlah Kuadrat	Derajat Bebas	Rataan kuadrat	F
A	JKA	a-1	$S_1^2 = JKA / (a-1)$	$S_1^2 / S^2$
B	JKB	b-1	$S_2^2 = JKB / (b-1)$	$S_2^2 / S^2$
Galant	JKG	(a-1)(b-1)	$S^2 = JKG / ((a-1)(b-1))$	—
Total	JKT	ab-1	—	—

BINA NUSANTARA

Edisi : 1

Revisi : 0

Feb - 2003

- Selang kepercayaan  $(1-\alpha)$  100% beda ratahan dua perlakuan  $\mu_l - \mu_k$  adalah

$$\left[ (\bar{y}_i - \bar{y}_k) - q(\alpha; a, r) \sqrt{\frac{2S^2}{b}}; (\bar{y}_i - \bar{y}_k) + q(\alpha; a, r) \sqrt{\frac{2S^2}{b}} \right]$$

dimana  $v = (a-1)(b-1)$

- Hipotesis  $H_0 : \mu_i = \mu_k$ , untuk  $i \neq k$  ditolak bila.

$$|\bar{y}_i - \bar{y}_k| > q(\alpha; a, v) \sqrt{2S^2 / b}$$

BINA NUSANTARA

Edisi : 1

Revisi : 0

Feb - 2003