FCDAE Chapter 3 cheat sheet

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Point estimators in the CRD

Single means model

Parameter	Estimator
μ	$\bar{y}_{\bullet\bullet}$
σ^2	$\frac{\sum_{i=1}^{g}\sum_{j=1}^{n_i}(y_{ij}-\bar{y}_{i\bullet})^2}{N-g}$

***Seperate means mode*l**

Parameter	Estimator
μ	$\bar{y}_{\bullet\bullet}$
μ_i	$\bar{y}_{i\bullet}$
α_i	$\bar{y}_{i\bullet} - \bar{y}_{\bullet\bullet}$
σ^2	$\frac{\sum_{i=1}^{g}\sum_{j=1}^{n_i}(y_{ij}-\bar{y}_{i\bullet})^2}{N-g}$

Standard errors of point estimators in the CRD

Parameter	Estimator	Standard Error
μ	$\bar{y}_{\bullet\bullet}$	$s/\sqrt{N}$
μ_i	$\bar{y}_{i\bullet}$	$s/\sqrt{n_i}$
α_i	$\bar{y}_{i\bullet} - \bar{y}_{\bullet\bullet}$	$s\sqrt{1/n_i - 1/N}$

Sum of squares in the CRD

$$SS_{Trt} = \sum_{i=1}^{g} n_i\hat{\alpha}_i^2$$
$$SS_E = \sum_{i=1}^{g}\sum_{j=1}^{n_i}(y_{ij} - \bar{y}_{1\bullet})^2$$
$$SS_T = SS_{Trt} + SS_E$$

Generic ANOVA table

Source	DF	SS	MS	F
Treatments	g-1	SS_{Trt}	SS_{Trt}/g-1	MS_{Trt}/MS_E
Error	N-g	SS_E	SS_E/(N-g)	