een $100(1-\alpha)\%$ CI voor $\frac{\sigma_X^2}{\sigma_Y^2}$ DDL 16j

Een dualiteit hypothese testen en CI

~~een $100(1-\alpha)\%$ CI van $\frac{\sigma_X^2}{\sigma_Y^2}$: $F_{n-1,m-1}(\frac{\alpha}{2})$, $F_{n-1,m-1}(1-\frac{\alpha}{2})$~~

$$\frac{S_X^2}{S_Y^2} = \theta\, F_{n-1,m-1} \Rightarrow \theta = \frac{\frac{S_X^2}{S_Y^2}}{F_{n-1,m-1}}$$

$$95\%\ CI : \left(\frac{\hat{\theta}}{F_{n-1,m-1}(\frac{\alpha}{2})} , \frac{\hat{\theta}}{F_{n-1,m-1}(1-\frac{\alpha}{2})} \right)$$

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$$\hat{\beta}_1 = \frac{\sum_{i=1}^{n}\sum_{j=1}^{2}(X_i-\bar{X})(Y_{ij}-\bar{Y})}{\sum_{i=1}^{n}\sum_{j=1}^{2}(X_i-\bar{X})^2} = \frac{\sum_{i=1}^{n}(X_i-\bar{X})\left\{(Y_{i1}-\bar{Y})+(Y_{i2}-\bar{Y})\right\}}{2\sum_{i=1}^{n}(X_i-\bar{X})^2}$$

$$= \frac{\sum_{i=1}^{n}(X_i-\bar{X})\left\{\frac{Y_{i1}+Y_{i2}}{2}-\bar{Y}\right\}}{\sum_{i=1}^{n}(X_i-\bar{X})^2} \quad \square$$

$$\hat{\beta}_0 = \bar{Y}-\beta_1\bar{X} \quad \square$$