

Progeny Intra-Class

pvr

2021-10-22

Generic Relations

- ▶ Data: parent i with k offspring performances
- ▶ Variance according to genetic model

$$\text{var}(y) = \text{var}(u) + \text{var}(e) = \sigma_y^2 = \sigma_u^2 + \sigma_e^2$$

* Genetic model of observation for offspring k

$$y_k = \mu + u_k + e_k = \mu + \frac{1}{2}(u_i + u_d) + m_k + e_k$$

where i and d are parents of offspring k

Parent i

- ▶ Observations of n offspring of parent i

$$\bar{y}_i = \frac{1}{n} \sum_{k=1}^n y_k$$

- ▶ Assume n offspring are half-sibs

$$\bar{y}_i = \frac{1}{n} \sum_{k=1}^n y_k = \frac{1}{n} \sum_{k=1}^n \mu + \frac{1}{2}(u_i + u_{d,k}) + m_k + e_k$$