Progeny Intra-Class

pvr

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Generic Relations

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

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

* 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

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