- Decomposition of genotype:

$$g_i = BV_i + D_i + I_i$$

Breeding value

- Insert into model for y_i:

$$y_i = \mu + g_i + e_i$$

$$= \mu + BV_i + D_i + I_i + e_i$$

- For selecting parents only BV_i is of interest

→ Regroup: $y_i = \mu + BV_i + \underbrace{D_i + I_i + e_i}$

$$y_i = \mu + BV_i + e_i^*$$

- Split environment into fixed known part and random unknown part

$$y_i = \mu + BV_i + e_i^*$$

$$y_i = x_i^T b + u_i + e_i \rightarrow \text{aggregation over all animals}$$

e.g. herd
season
days in milk