

- Genetic Model: $P = G + E$
 rename P with y corresponding to the phenotypic observation

- rename G with V the genotypic value

⇒ For an animal i , the ^{1st} phenotypic observation y_{ij} can be decomposed into:

$$\text{phenotype } y_{ij} = \underbrace{V_i}_{\text{genotypic value}} + \underbrace{e_{ij}}_{\text{environment}}$$

- Decomposition of V_i is inserted: $V_i = \mu + u_i + d_i + i_i$

$$y_{ij} = \mu + u_i + d_i + i_i + e_i$$

- From a livestock breeding perspective, because parents pass a random sample of their alleles to their offspring, u_i are especially important

- Dominance and epistasis are re-grouped together with e_i into a new e^* - random term