- Statistical Model

$$y = Xb + Zu + e$$

- Zu: random predictor (breeding value)
- e: random residuals
- X: predictors ($x_1, x_2, \ldots$); vector b: unknown fixed effects
- y: vector of response variables (trait measurements)

- function $m(x,u) \Rightarrow$ additive function

linear in parameters b, u

not terms like b^2, u^3, $\exp(b)$ (non-linear)

One trait

- Application to genetic evaluation:
  - very many predictors, where only a restricted number is meaningful for responses

- Example:
  - Body Weight as response $\Rightarrow y$
  - 2 predictors:
    - Breast Circumference
    - Random Predictor

- Full Model: (Intercept): −12.18
  BC: 8.53
  Red Model: (Intercept): −10.65
  BC: 8.67