Single Step using BVM

- Estimate / predict breeding values for animals in one evaluation.

- Linear Mixed Effect Models where the genomic breeding value is modelled as a random effect.

$$y = Xf + Zg + e \; ; \quad E(e) = 0 \,,\; \mathrm{Var}(e) = I \cdot \sigma_e^2$$

$$E(g) = 0 \quad \mathrm{var}(g) = G \cdot \sigma_g^2$$

where G is the genomic relationship matrix

- Solutions with MME

- Data set is the same as for the reference population in the Two-step approach.
  ⇒ all animals have observations (y) and genotype information.

- Young animals, they do not have observations, but they have genotype-information.