Def: Breeding Value

population $\Rightarrow$ mean μ

offspring from sire S2

offspring sire S1

mean genotypic value for all offspring from Sire S1:

μ_{S1}

Breeding Value for sire S1:

$$BV_{S1} = 2(\mu_{S1} - \mu)$$

sire passes 0.5 of alleles randomly

mean genotypic value for all offspring from Sire S2: μ_{S2}

Breeding value sire S2:

$$BV_{S2} = 2(\mu_{S2} - \mu)$$