

Decomposition of single locus genotypic values

- For a single locus: $V_{ij} = \mu + BV_{ij} + D_{ij}$
- Insert into the two locus model:

$$V_{G_i G_j H_k H_l} = V_{G_i G_j} + V_{H_k H_l} + I_{GH}$$

$$= \mu_G + BV_{G_i G_j} + D_{G_i G_j} + \mu_H + BV_{H_k H_l} + D_{H_k H_l} + I_{GH}$$

- Collecting terms \Rightarrow

$$V_{G_i G_j H_k H_l} = \underbrace{\mu_G + \mu_H}_{\mu} + \underbrace{BV_{G_i G_j} + BV_{H_k H_l}}_{BV_{ij\ell}} + \underbrace{D_{G_i G_j} + D_{H_k H_l}}_{D_{ij\ell}} + I_{GH}$$

$$= \mu + BV_{ij\ell} + D_{ij\ell} + I_{GH}$$