

A further statistical quantity to describe variation of a random variable (V) is the variance

- Variance is the second moment of random variable
- For discrete random variable V :

$$\text{Var}[V] = \sum_{i \in \{G_1 G_1, G_1 G_2, G_2 G_2\}} f(i) \cdot (i - \mu)^2$$

$$= (V_{11} - \mu)^2 \cdot f(G_1 G_1)$$

$$+ (V_{12} - \mu)^2 \cdot f(G_1 G_2)$$

$$+ (V_{22} - \mu)^2 \cdot f(G_2 G_2)$$

$$= \dots = 2pqd^2 + (2pqd)^2$$

$$= \underbrace{\frac{d^2}{4}}_{\text{variance of BV}} + \frac{d^2}{4}$$

variance of BV

variance of dominance deviation