

# Infinitesimal Model

Model:  $y_{ij} = \mu_i + u_i + e_{ij}^*$

$$BV_{A1j} + BV_{B1j} + BV_{C1j} + \dots \rightarrow \infty$$

in the limit: infinite number of loci that affects our quantitative trait of interest.

- Consequences of infinitesimal model for the properties of breeding values ( $u$ ) are determined by the Central Limit Theorem (CLT)

- CLT: Any random variable  $u$  which is composed of the sum of a large number ( $N$ ) of small effects, will converge in distribution to a Normal gaussian distribution

$$u = \sum_{i=1}^N BV_i \quad \text{if } N \rightarrow \infty, \text{ in Limit } u \text{ shows}$$

