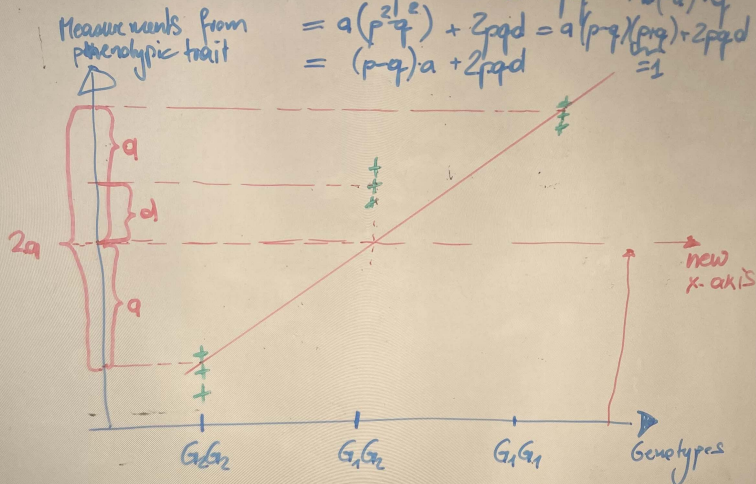


Genotypic Values

- Expected value for the random variable V is the population mean:

$$\begin{aligned}\mu &= V_{11} \cdot f(G_1G_1) + V_{12} \cdot f(G_1G_2) + V_{22} \cdot f(G_2G_2) \\ &= a \cdot p^2 + d \cdot 2pq + (-a) \cdot q^2 \\ &= a(p^2 - q^2) + 2pqd = a(p-q)(p+q) + 2pqd \\ &= (p-q)a + 2pqd\end{aligned}$$



Genotypic value for G_1G_1 is called $V_{11} = a$
 G_1G_2 is called $V_{12} = d$
 G_2G_2 is called $V_{22} = -a$