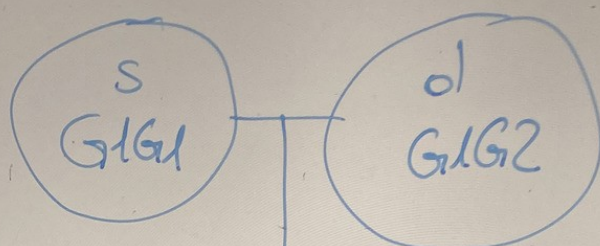


⑤

- Mixed: one parent homozygous
other parent heterozygous



$$u_s = 2q\alpha$$

$$u_d = (q-p)\alpha$$

$$\frac{1}{2}(u_s + u_d) =$$

$$= \frac{1}{2}(2q\alpha + (q-p)\alpha)$$

$$= q\alpha + \frac{1}{2}q\alpha - \frac{1}{2}p\alpha$$

$$= \frac{3}{2}q\alpha - \frac{1}{2}p\alpha$$

1000 off
⇒ 500 G1G1
500 G1G2

$$u_i = \frac{1}{2}u_s + \frac{1}{2}u_d + m_i$$

$$m_i = u_i - \frac{1}{2}(u_s + u_d)$$

$$= 2q\alpha - \left(\frac{3}{2}q\alpha - \frac{1}{2}p\alpha\right) = 2q\alpha - \frac{3}{2}q\alpha + \frac{1}{2}p\alpha$$

$$m_j = u_j - \frac{1}{2}(u_s + u_d)$$

$$= (q-p)\alpha - \left(\frac{3}{2}q\alpha - \frac{1}{2}p\alpha\right)$$

$$= q\alpha - p\alpha - \frac{3}{2}q\alpha + \frac{1}{2}p\alpha = -\frac{1}{2}q\alpha - \frac{1}{2}p\alpha$$

$$= -\frac{1}{2}\alpha$$

$$= \frac{1}{2}q\alpha + \frac{1}{2}p\alpha$$

$$= \frac{1}{2}\alpha$$