In an ideal population (very large, ~~no~~ random mating, ...)

- Hardy-Weinberg
  Assumption in parent generation

Allele: $f(G_1) = p$, $f(G_2) = q \Rightarrow q = 1 - p$

Genotype frequencies:

Alleles	G_1	G_2
$\Rightarrow G_1$	$f(G_1G_1) = p \cdot p = p^2$	$f(G_1G_2) = p \cdot q$
G_2	$f(G_2G_1) = q \cdot p$	$f(G_2G_2) = q^2$

$\Rightarrow$ Alleles in gametes

G_1G_2 and G_2G_1 are the same

$\Rightarrow f(G_1G_1) = 2pq$