F-Statistics

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Heterozygosity of the individual relative to that expected for a subpopulation of individuals.

$$F_{ST} = 1 - \frac{H_S}{H_T}$$

Average heterozygosity across populations relative to what is expected if all populations were a single panmictic unit.

$$H_S = 2pq$$

$$= \frac{1}{K} \sum_{i=1}^{K} 2p_i q_i$$

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What is F_{ST} when:

1. Two populations are fixed for different alleles?

2. Two populations, A has $p=q$ in HWE and B has $r=s$ also in HWE.

3. Four populations, A, B, C fixed for one allele, population D fixed for different allele?