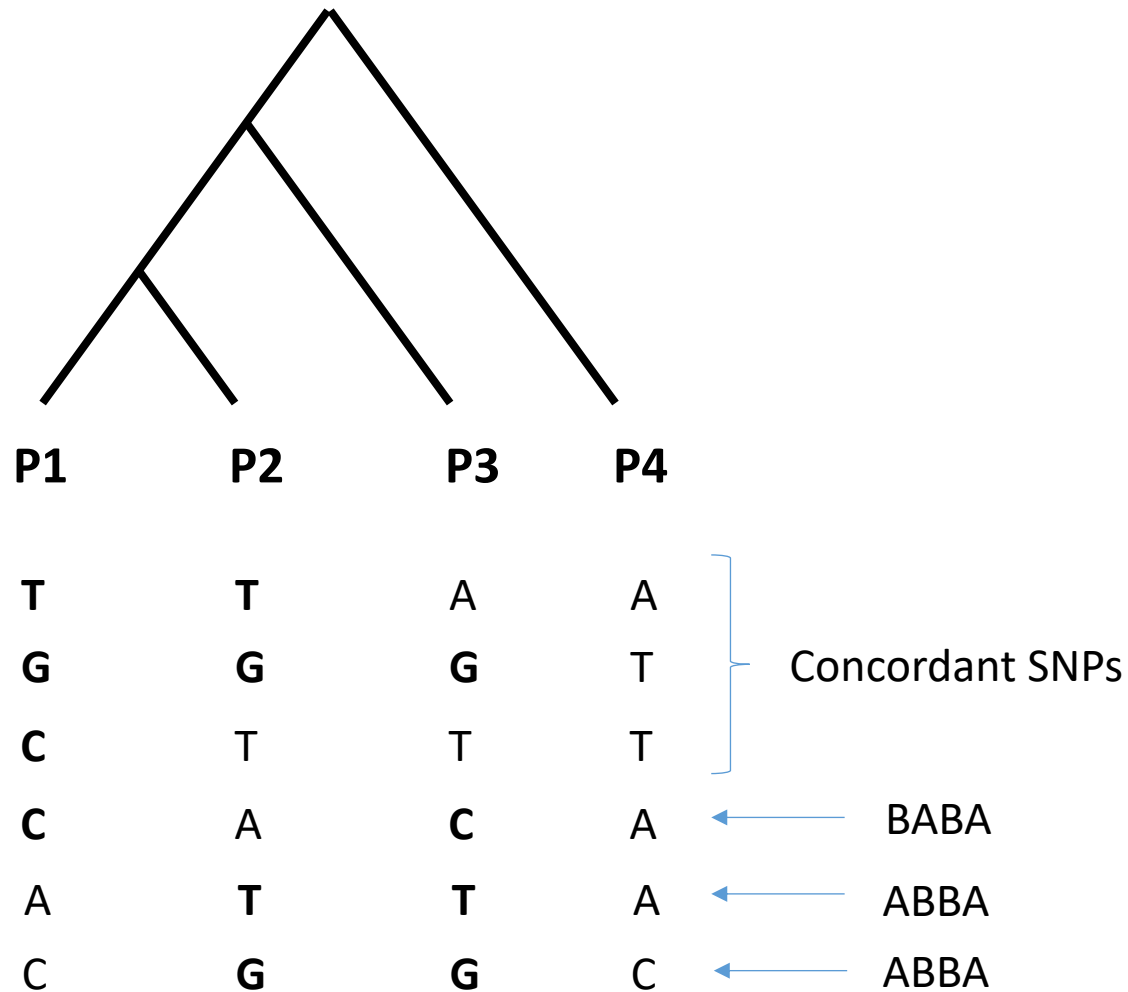


Patterson's D statistics to identify hybridization

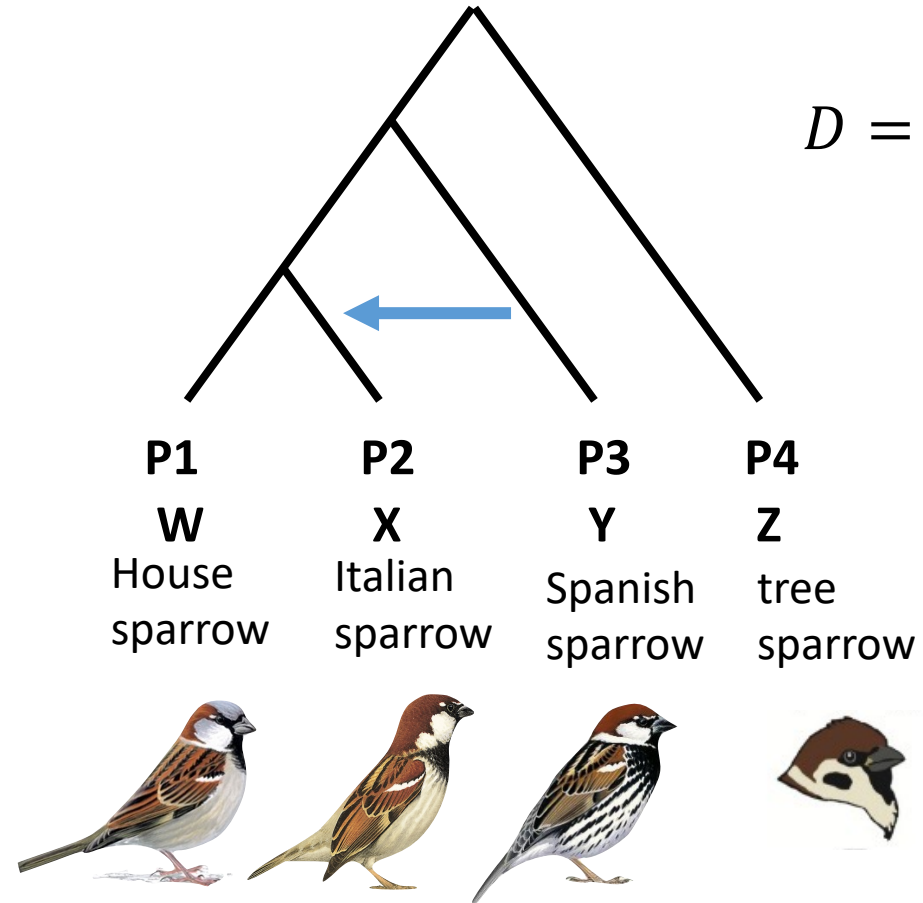
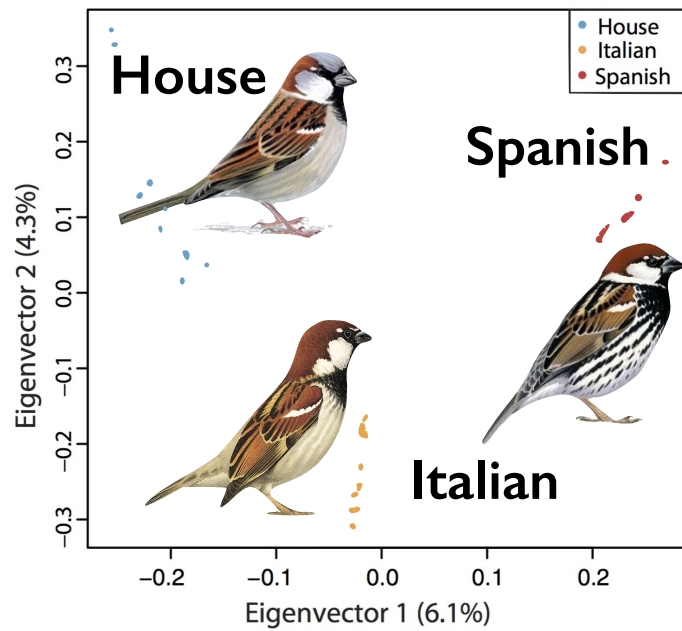
- Also called ABBA-BABA test: $D = (ABBA - BABA) / (BABA + ABBA)$



$$D = \frac{BABA - ABBA}{ABBA + BABA}$$

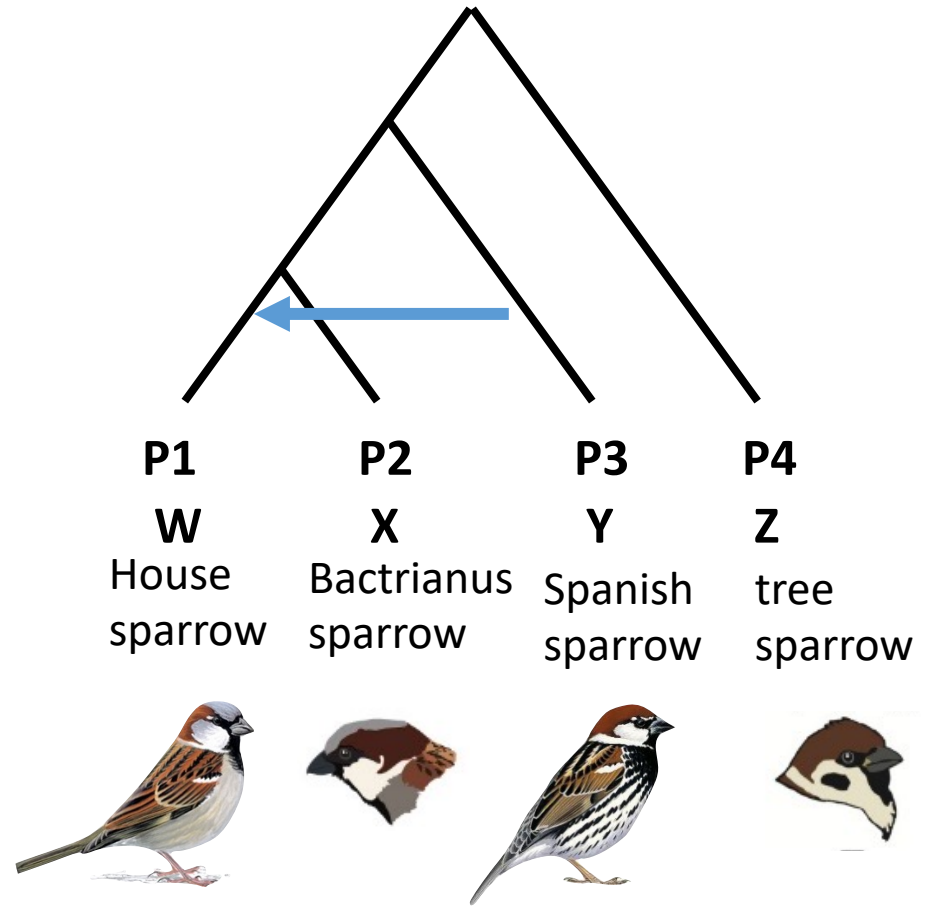
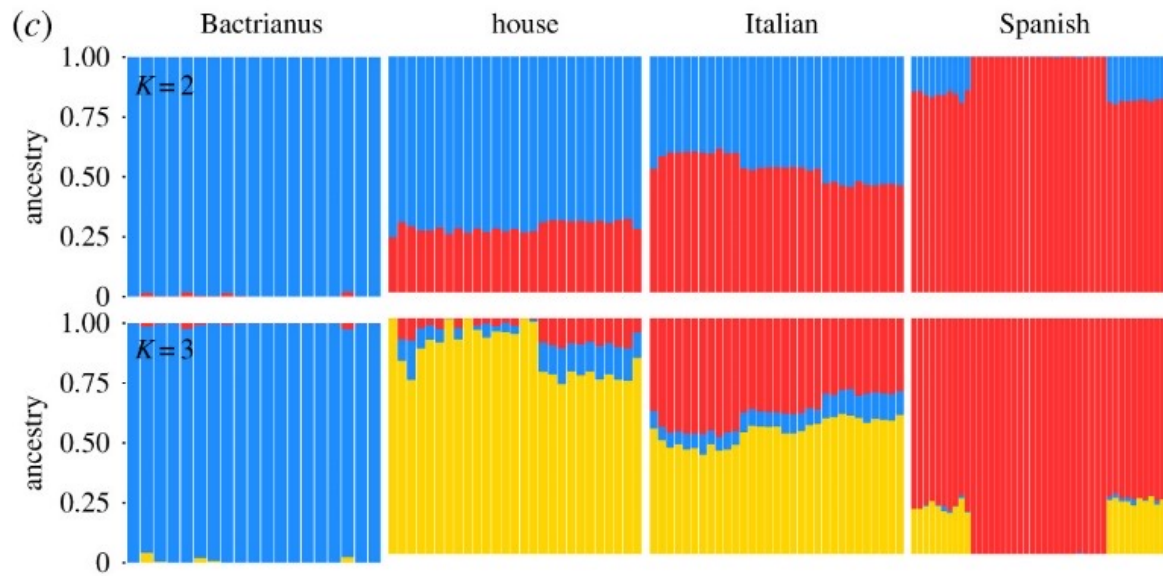
$$D = \frac{1-2}{2+1} = -1/3$$

Are Italian sparrows of hybrid ancestry?



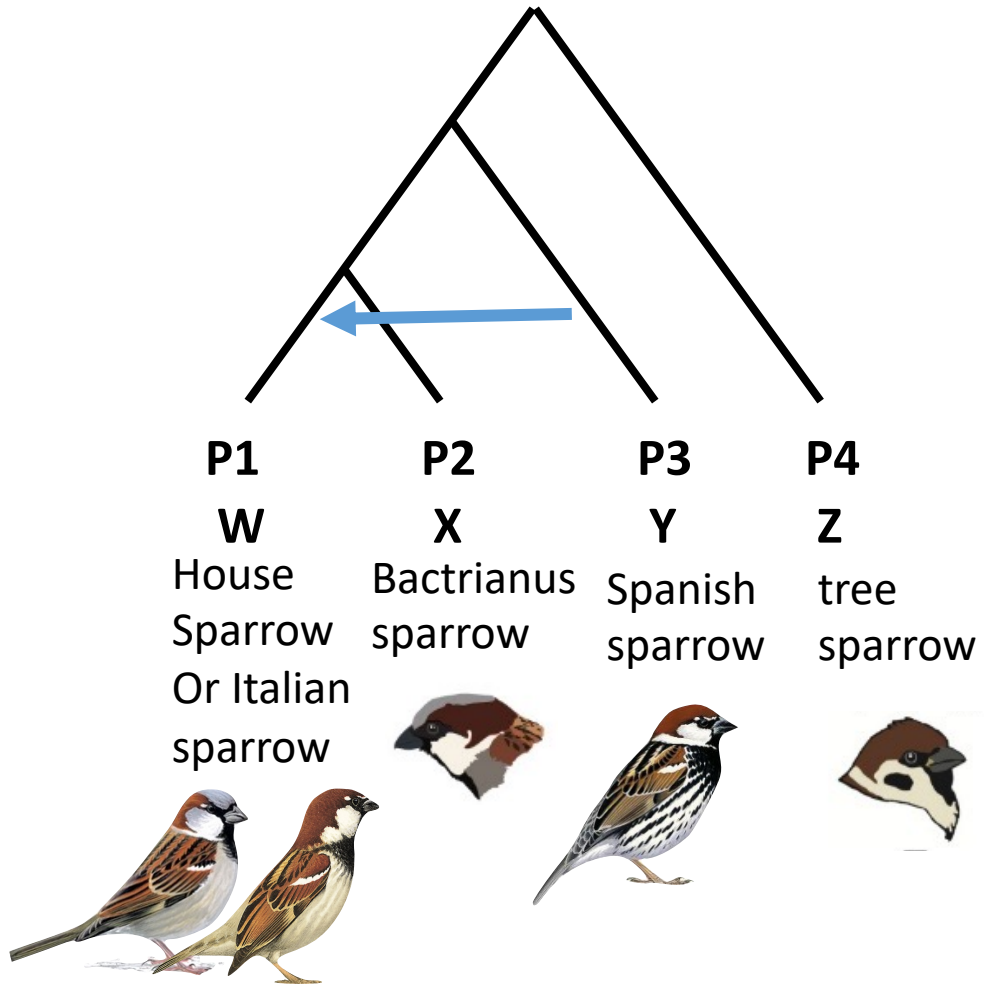
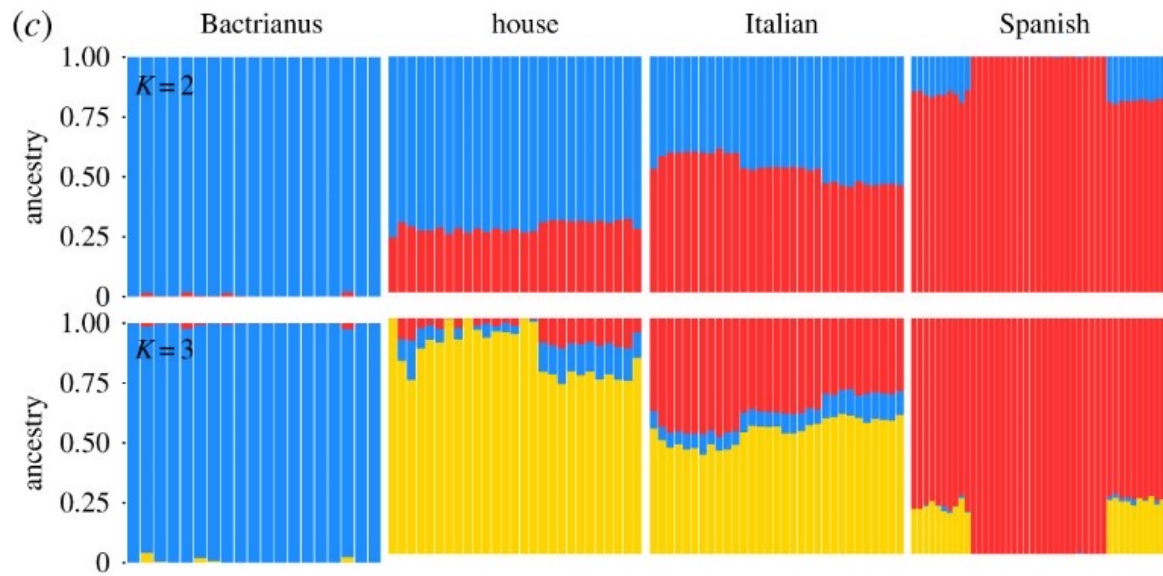
$$D = \frac{BABA - ABBA}{ABBA + BABA}$$

BABA > ABBA D > 0 Spanish sparrow hybridised with house sparrow
 ABBA > BABA D < 0 Spanish sparrow hybridised with Italian sparrow



$$D = \frac{BABA - ABBA}{ABBA + BABA}$$

BABA > ABBA $D > 0$ Spanish sparrow hybridised with the house sparrow
 ABBA > BABA $D < 0$ Spanish sparrow hybridised with Bactrianus sparrow



$$D = \frac{BABA - ABBA}{ABBA + BABA}$$

BABA > ABBA $D > 0$ Spanish sparrow hybridised with house/Italian sparrow
 ABBA > BABA $D < 0$ Spanish sparrow hybridised with house/Italian sparrow