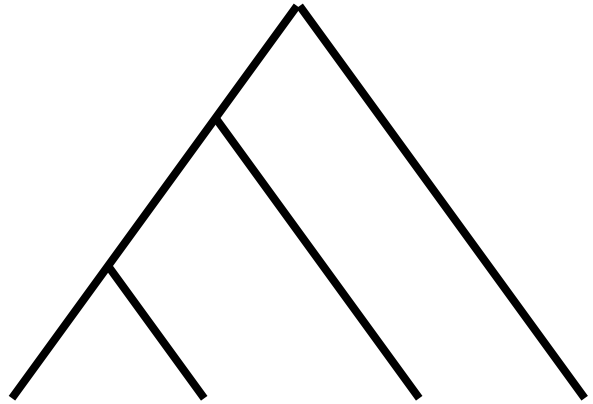
Detecting hybridisation with Dstatistics

Patterson’s D statistics to identify hybridisation

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

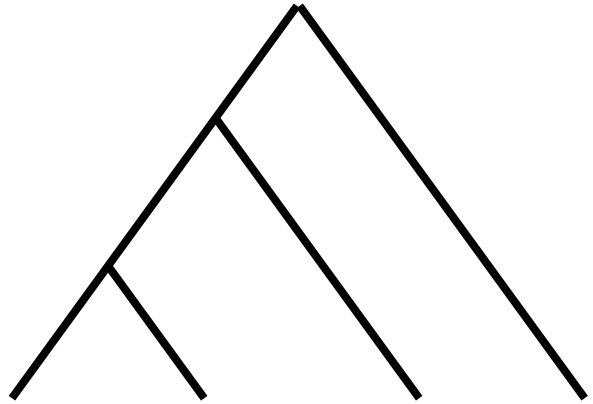


$$D = \frac{ABBA - BABA}{ABBA + BABA}$$

P1	P2	P3	P4	
T	**T**	A	A	
G	**G**	**G**	T	Concordant SNPs
C	T	T	T	
C	A	**C**	A	Discordant SNPs
A	**T**	**T**	A	

Patterson's D statistics to identify hybridisation

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



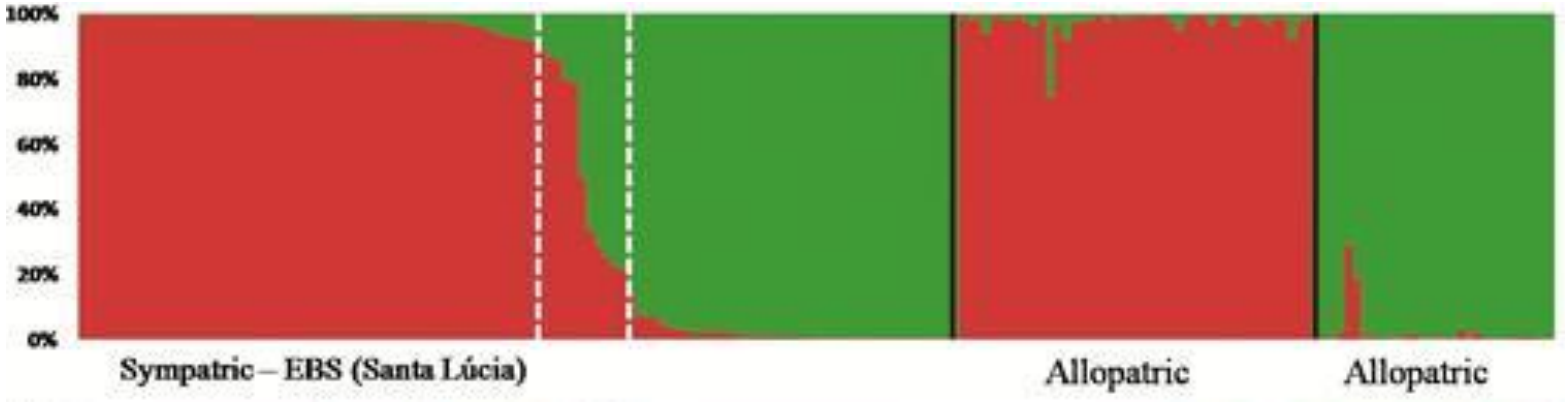
P1	P2	P3	P4	
T	**T**	A	A	
G	**G**	**G**	T	Concordant SNPs
C	T	T	T	
C	A	**C**	A	← BABA
A	**T**	**T**	A	← ABBA
C	**G**	**G**	C	← ABBA

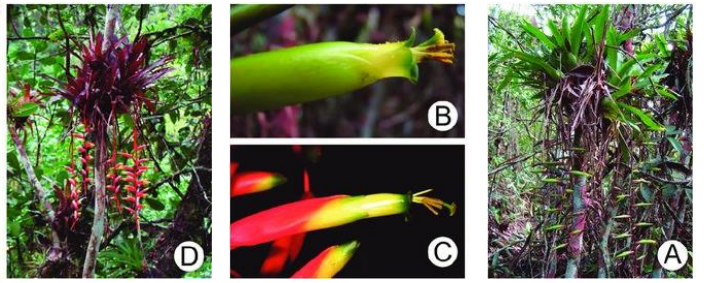
$$D = \frac{ABBA - BABA}{ABBA + BABA}$$

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

Dstatistics

- Require 4 populations/species, whereby one is more introgressed than its sister population/species
- Cannot show the direction of introgression -> for that, we can use Dfoil (see tutorial) with five populations/species
- Do not show if introgression is ancestral to all individuals, or if it is still ongoing -> for that, we can use ADMIXTURE or STRUCTURE which will show if some individuals are more introgressed





Vriesia simplex *Vriesia scalaris*

Neri, et al., AoB Plants

Testing for introgression between *Mechanitis nesaea* and *M. lysimnia*