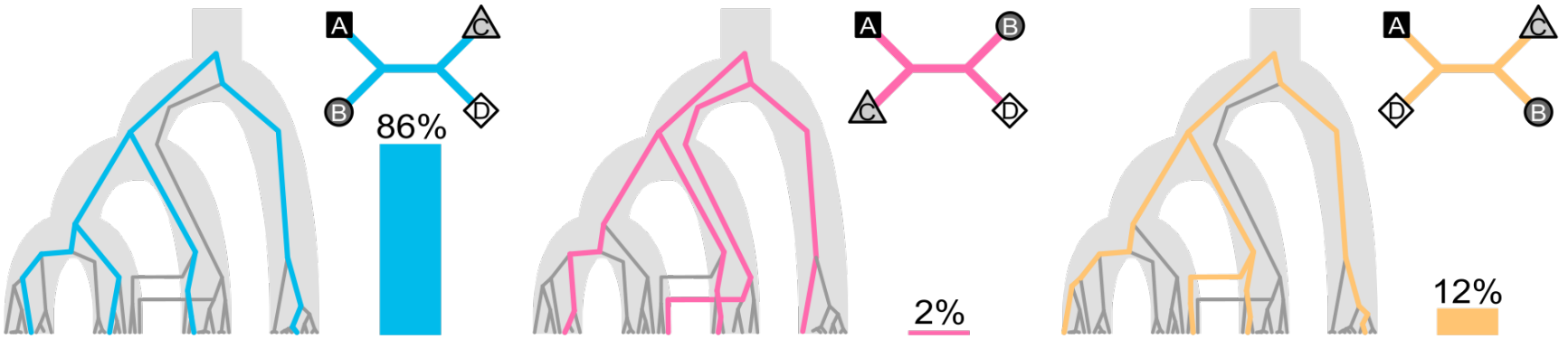


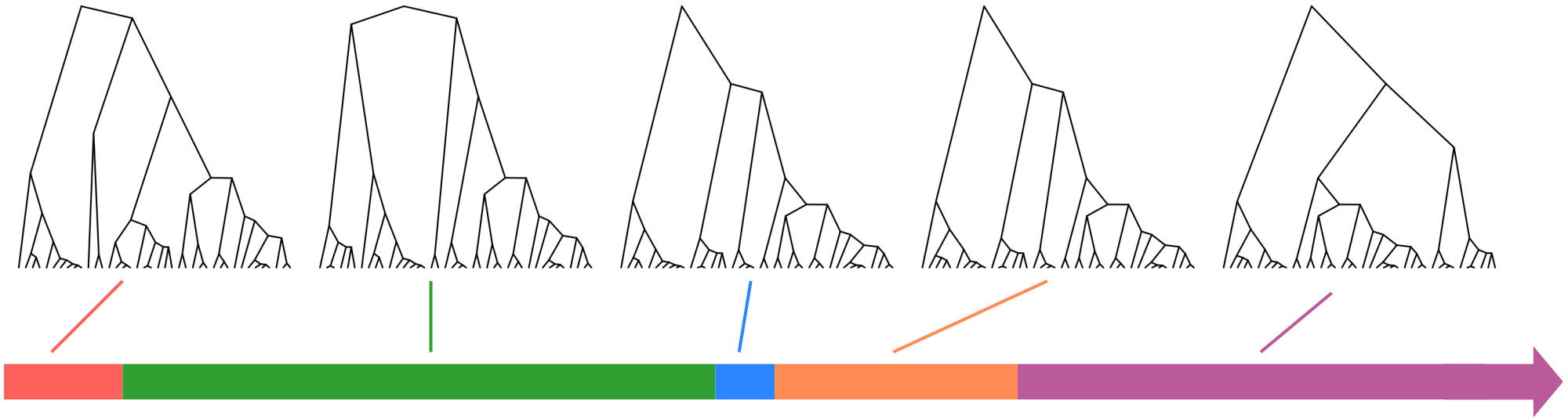
Twisst: Topology weighting by iterative sampling of sub-trees

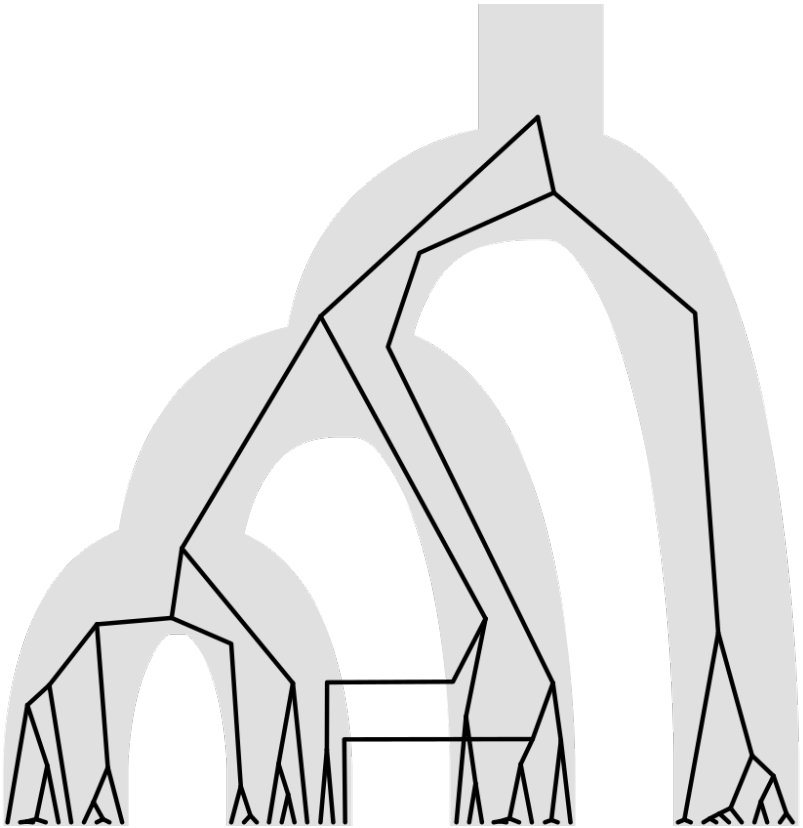
Code: github.com/simonhmartin/twisst

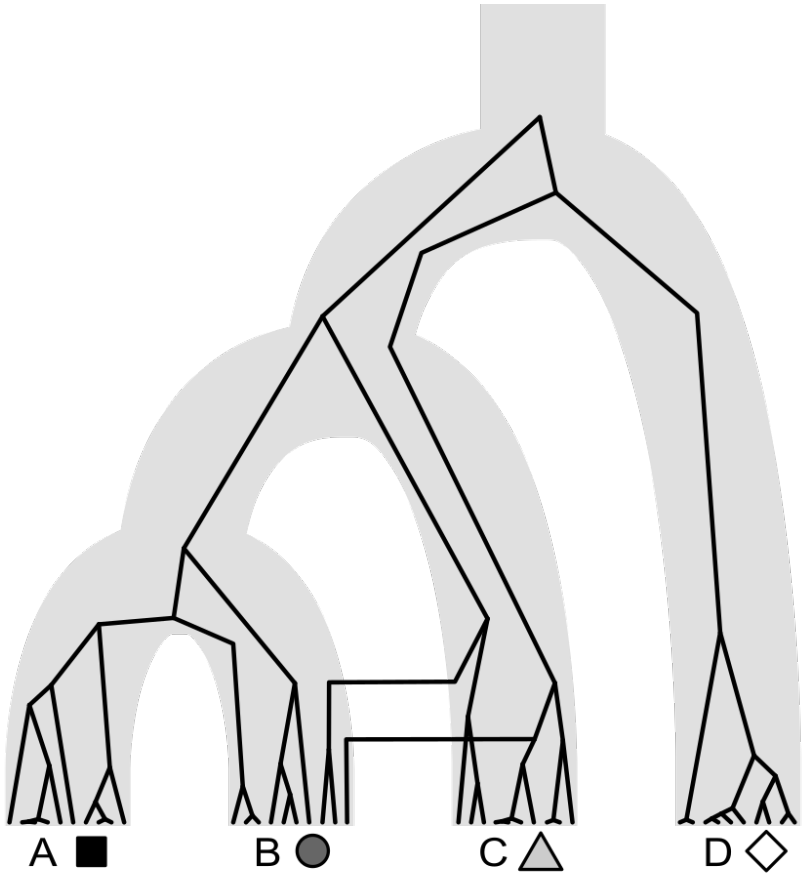
Part 1: Running Twisst on a simulated set of genealogies

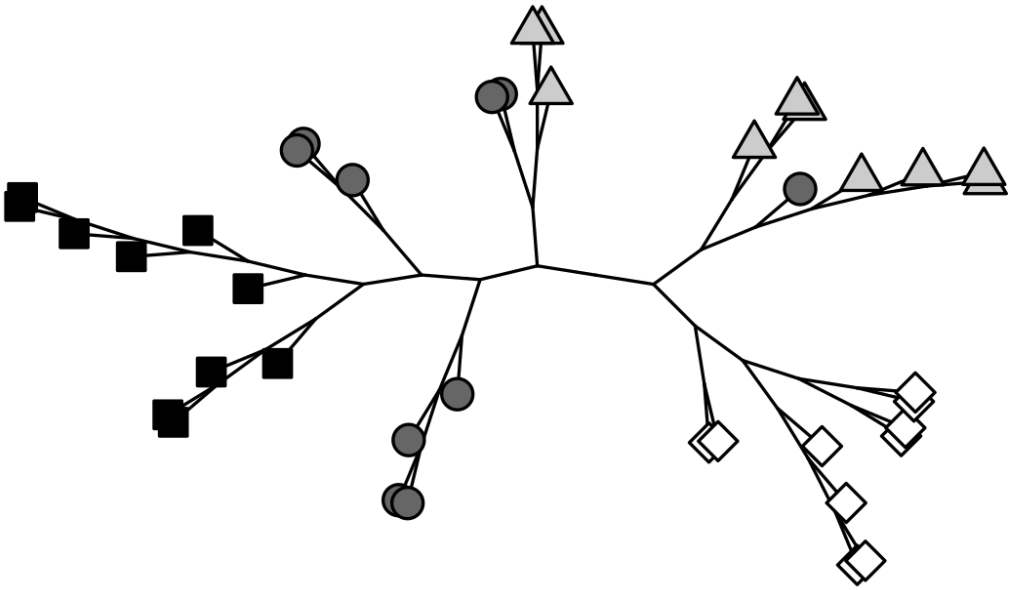
Part 2: Running Twisst on trees inferred from sequence data

Part 3: Running simulations in msprime to examine the effects on topology weights

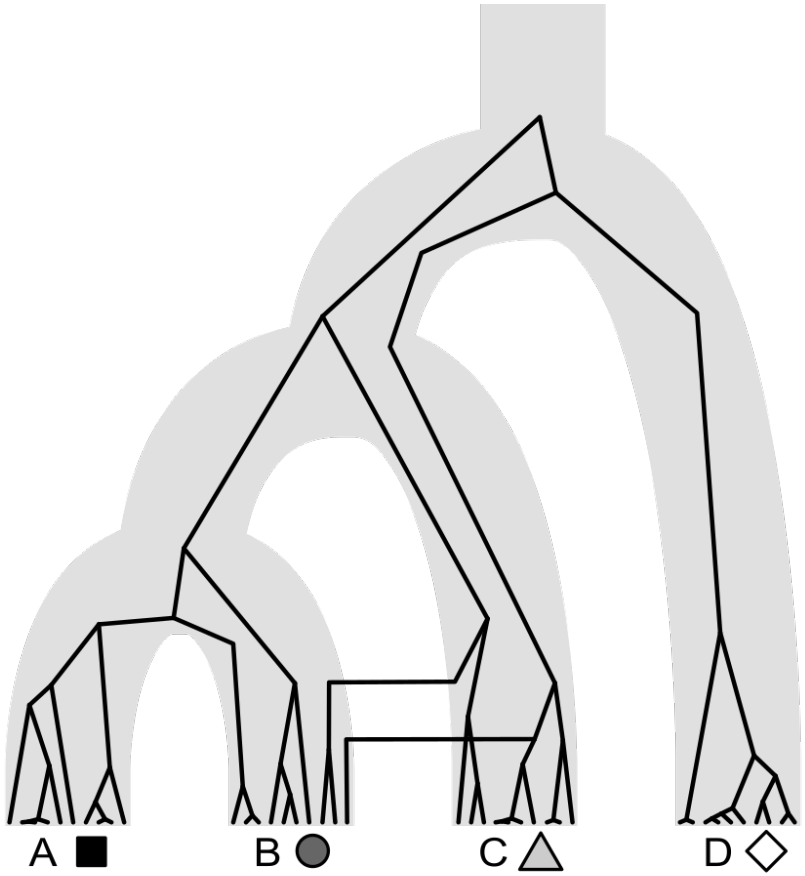


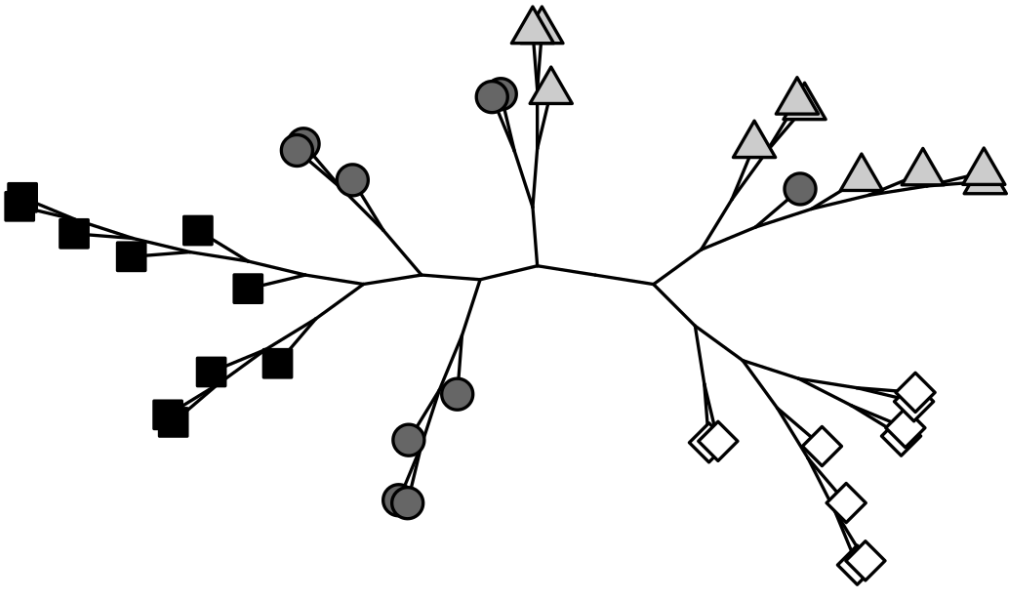


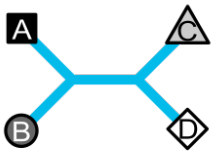


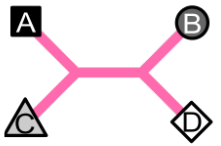


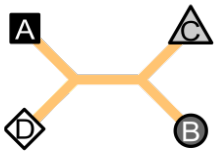
(One of ~10^{55} possible states)

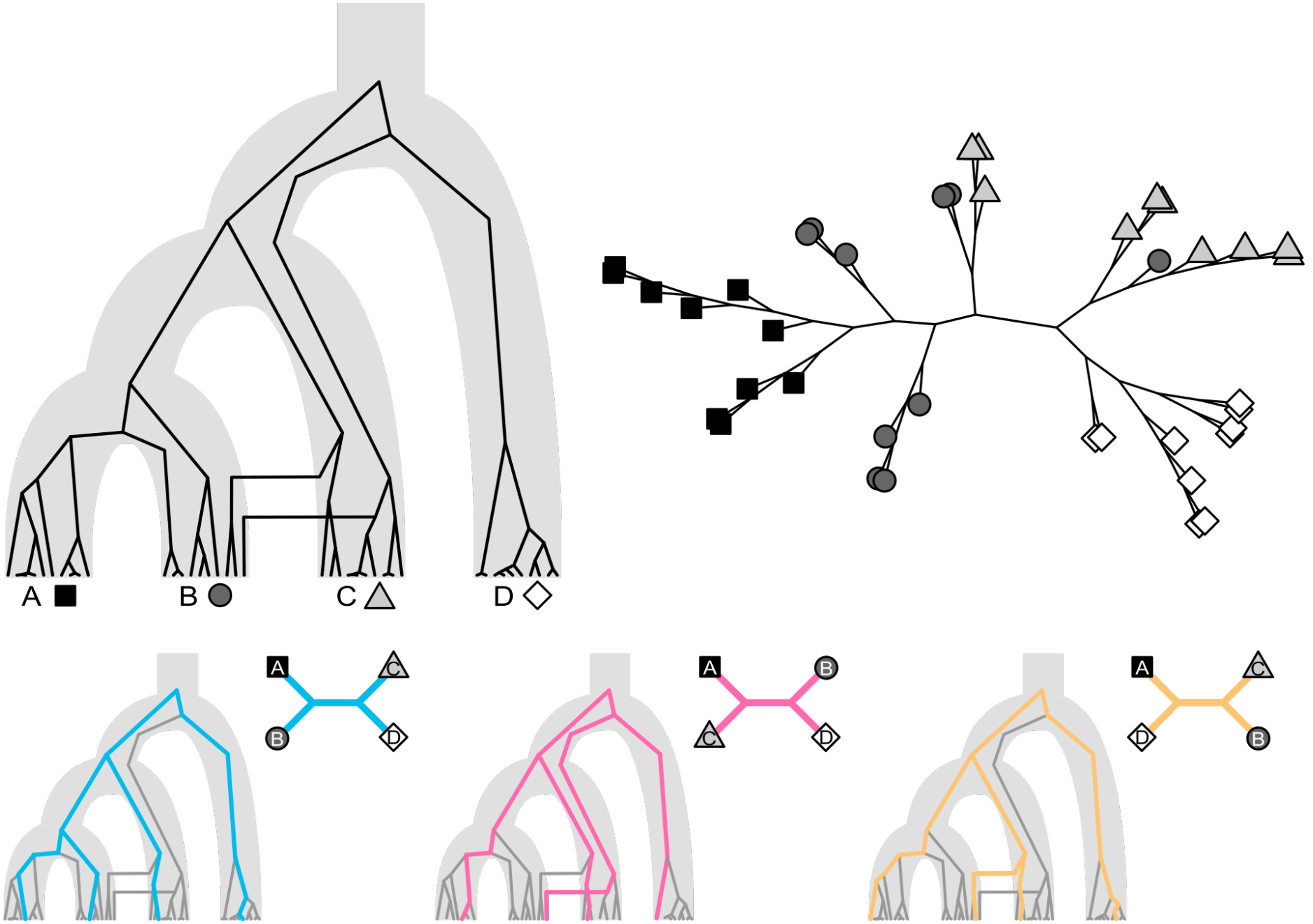

A
B
C
D

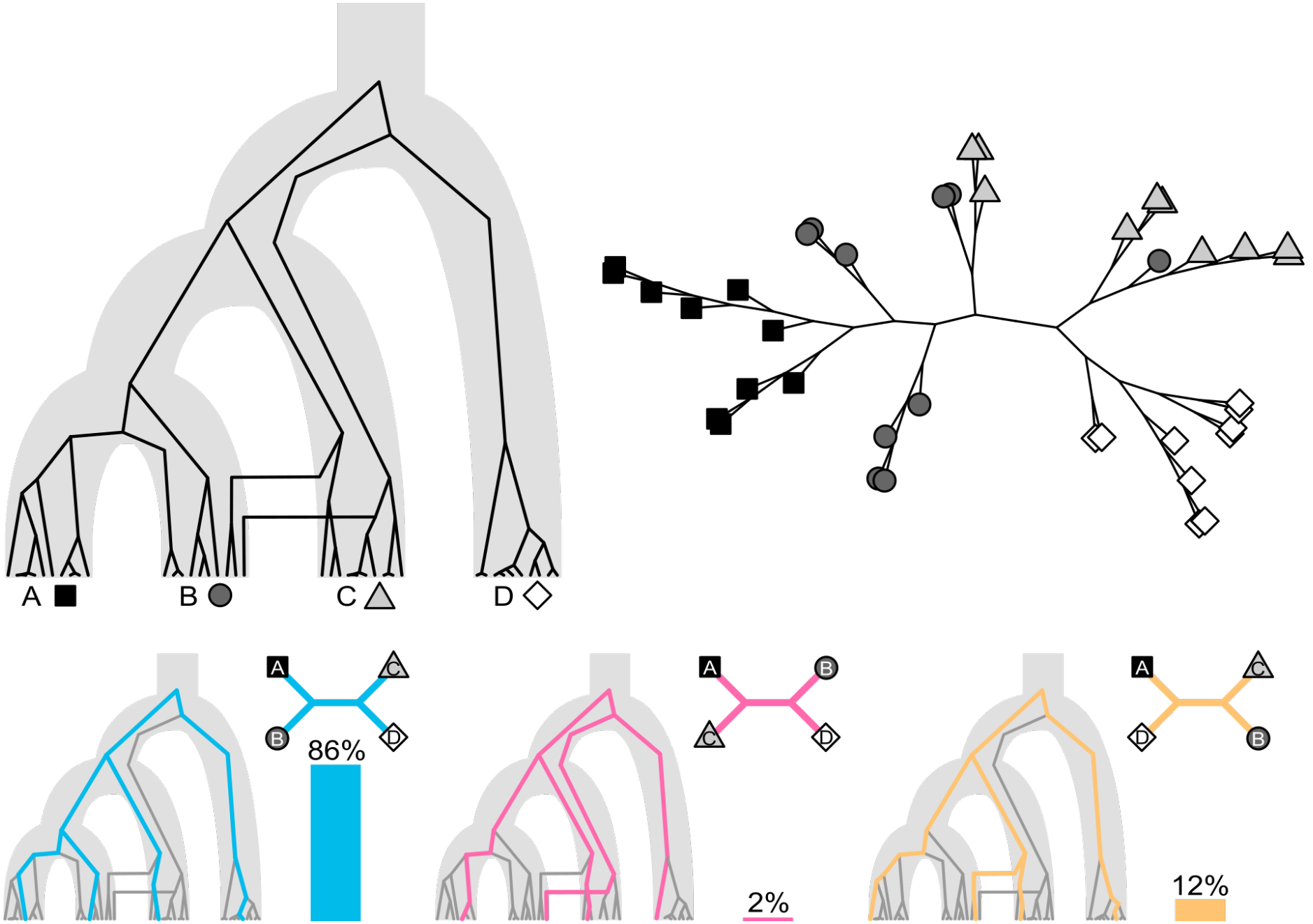


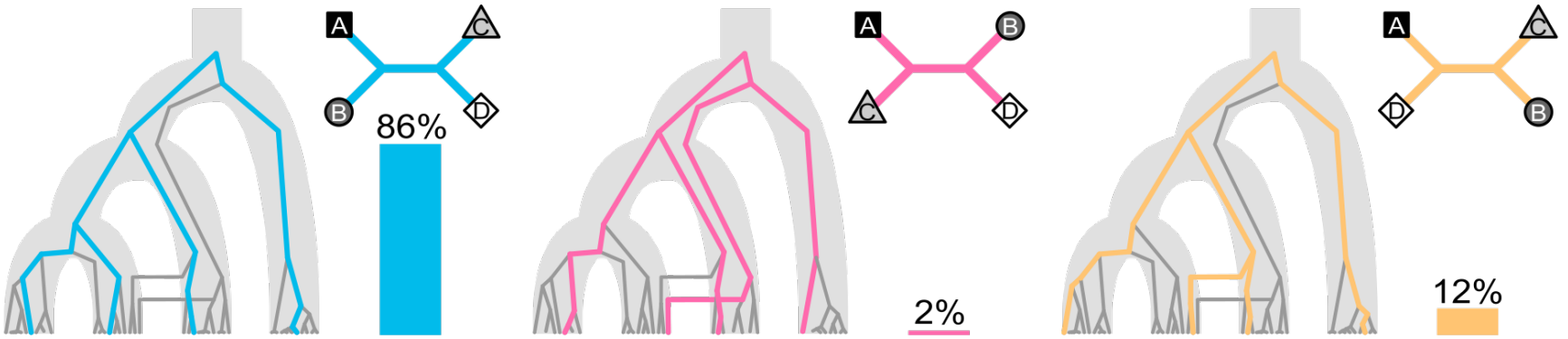

A
C
B
D


A
B
C
D


A
C
D
B

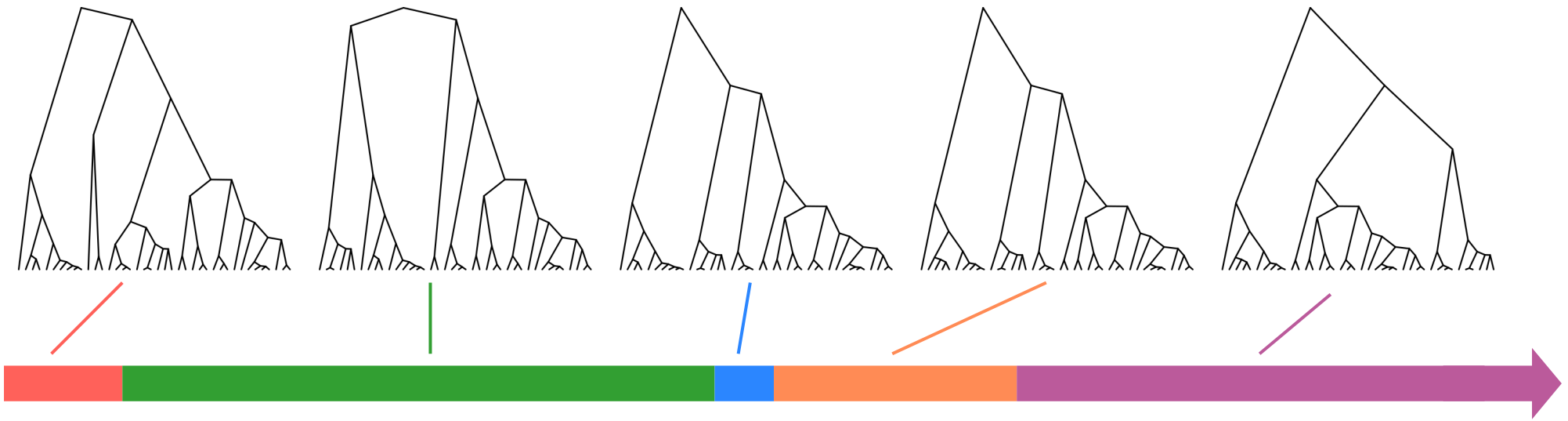

A
B
C
D
A
C
B
D
A
B
C
D
A
C
D
B


A
B
C
D
A
C
B
D
86%
A
B
C
D
2%
A
C
D
B
12%

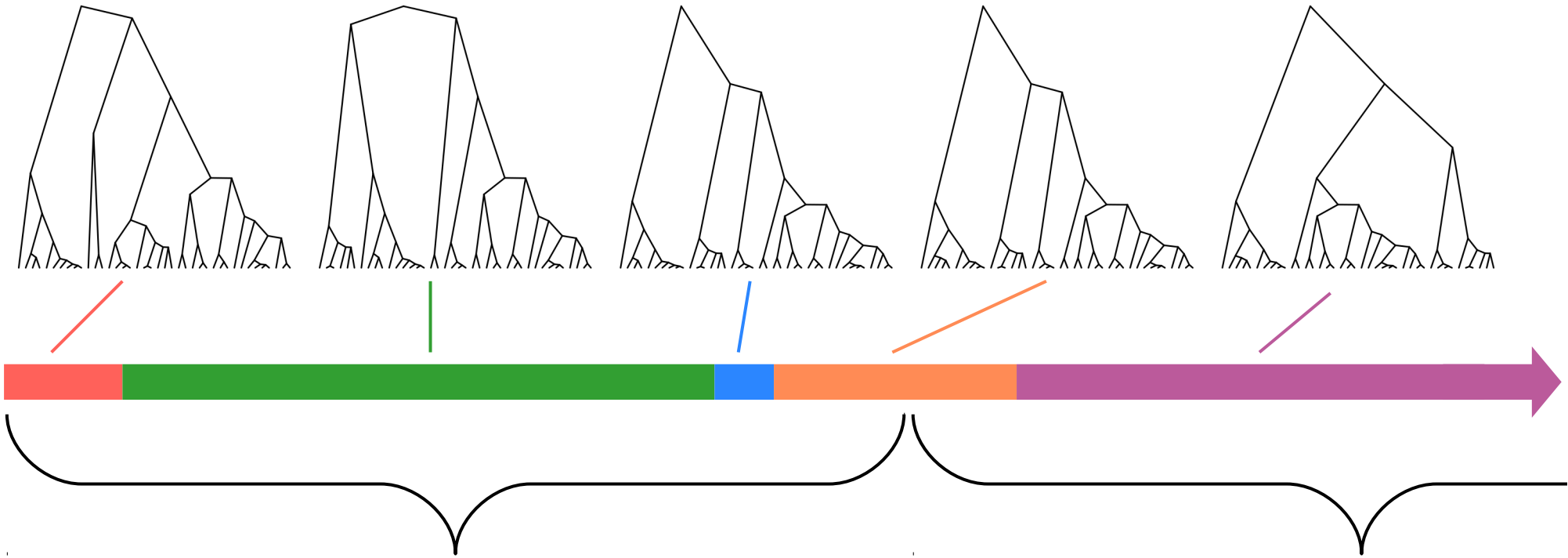


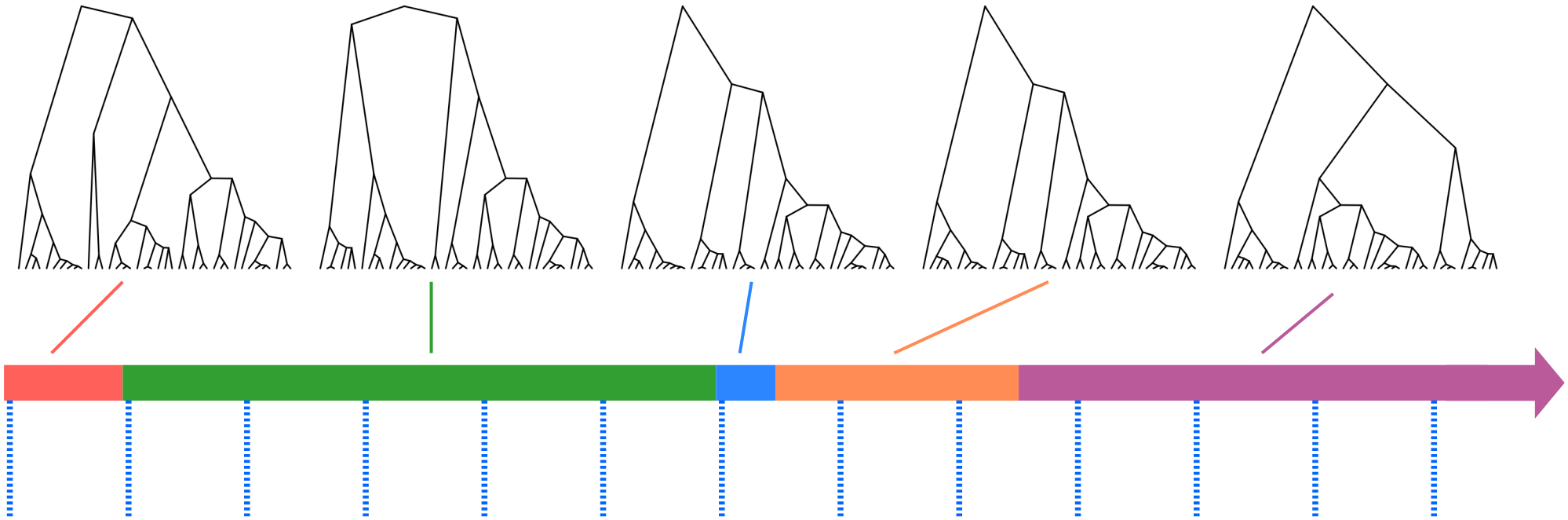
Twisst: Topology weighting by iterative sampling of sub-trees

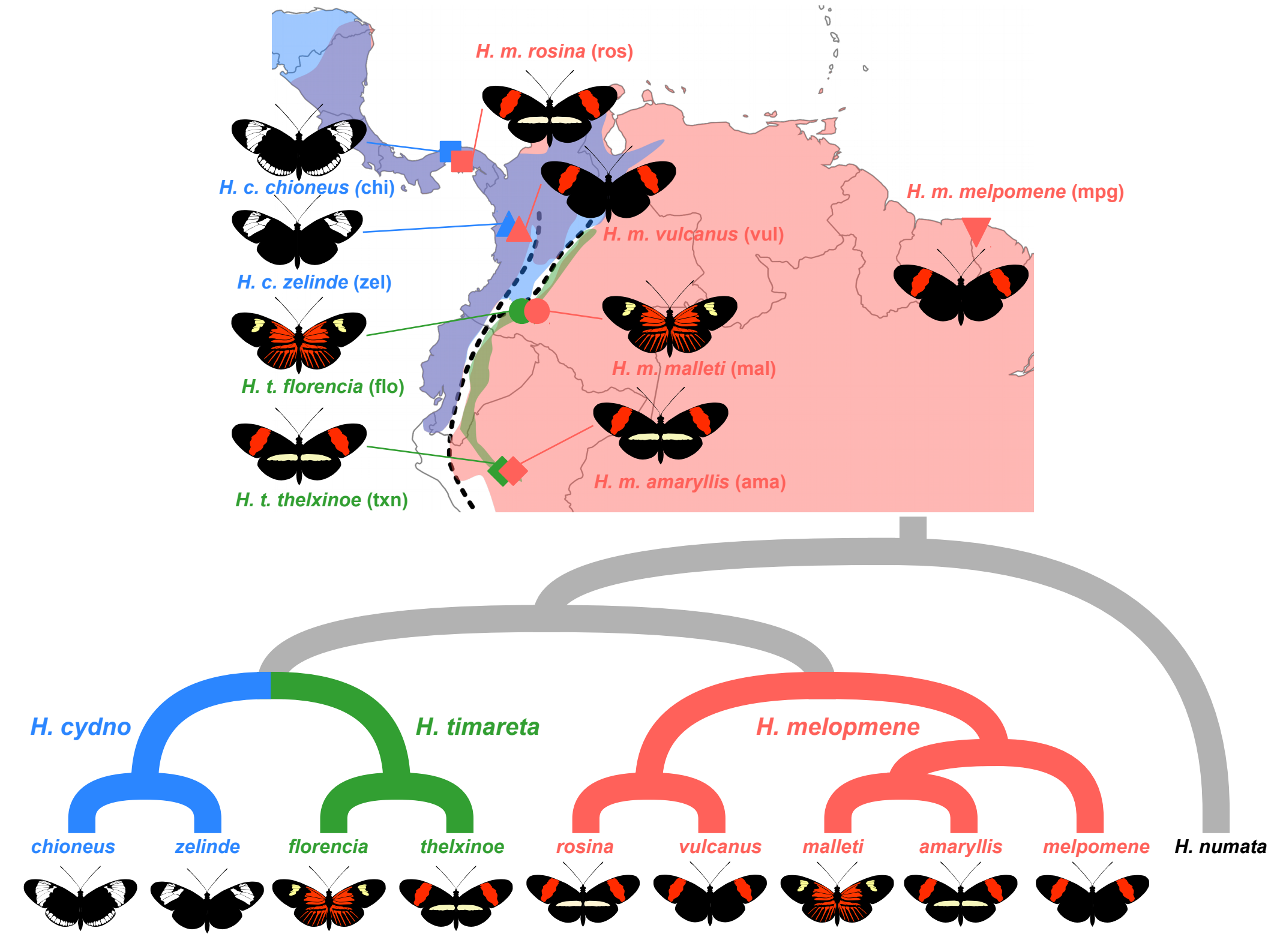
Code: github.com/simonhmartin/twisst



```
[14](1:1.03595,((4:0.03331,3:0.03331):0.01092,2:0.04423):0.99172);
[2](1:1.03595,((4:0.03331,3:0.03331):0.01092,2:0.04423):0.99172);
[2](1:1.03595,((4:0.03331,3:0.03331):0.01092,2:0.04423):0.99172);
[7](1:1.85117,((4:0.03331,3:0.03331):0.01092,2:0.04423):1.80694);
[12](((4:0.03331,3:0.03331):0.01092,2:0.04423):0.95903,1:1.00326);
[36](((4:0.03331,3:0.03331):0.01092,2:0.04423):0.95903,1:1.00326);
[7](1:0.64087,((4:0.03331,3:0.03331):0.01092,2:0.04423):0.59664);
[19](1:0.64087,((4:0.03331,3:0.03331):0.01092,2:0.04423):0.59664);
[1]((4:0.03331,3:0.03331):1.02753,(1:0.64087,2:0.64087):0.41997);
[9](((4:0.03331,3:0.03331):0.35299,1:0.38630):0.67454,2:1.06084);
[1]((1:0.14861,(4:0.03331,3:0.03331):0.11530):0.91223,2:1.06084);
[1]((1:0.14861,(4:0.03331,3:0.03331):0.11530):0.63089,2:0.77950);
[161]((1:0.14861,(4:0.03331,3:0.03331):0.11530):0.04902,2:0.19763)
[46]((1:0.14861,(4:0.03331,3:0.03331):0.11530):0.30543,2:0.45404);
[45](1:0.76401,((4:0.03331,3:0.03331):0.42073,2:0.45404):0.30997);
[18](((4:0.03331,3:0.03331):0.41046,1:0.44377):0.32024,2:0.76401);
[11](((4:0.03331,3:0.03331):0.24308,1:0.27639):0.16738,2:0.44377);
[2](2:1.98201,((4:0.03331,3:0.03331):0.24308,1:0.27639):1.70562);
[9](((4:0.03331,3:0.03331):0.24308,1:0.27639):0.18957,2:0.46596);
[8](2:0.91074,((4:0.03331,3:0.03331):0.24308,1:0.27639):0.63435);
[4](2:0.91074,((4:0.03331,3:0.03331):0.86091,1:0.89422):0.01652);
[1]((2:0.91074,(4:0.03331,3:0.03331):0.87743):0.51410,1:1.42484);
[4]((2:0.24776,(4:0.03331,3:0.03331):0.21445):1.17708,1:1.42484);
[19]((2:0.24776,(4:0.03331,3:0.03331):0.21445):1.17708,1:1.42484);
[10](1:1.31933,(2:0.24776,(4:0.03331,3:0.03331):0.21445):1.07156);
[1](1:0.69195,(2:0.24776,(4:0.03331,3:0.03331):0.21445):0.44419);
[14](1:0.78027,(2:0.24776,(4:0.03331,3:0.03331):0.21445):0.53251);
[22](1:0.65161,(2:0.24776,(4:0.03331,3:0.03331):0.21445):0.40385);
[1](1:0.65161,(2:0.24776,(3:0.23334,4:0.23334):0.01442):0.40385);
[25]((1:0.65161,(2:0.24776,3:0.24776):0.40385):0.03131,4:0.68293);
[6](((2:0.36418,1:0.36418):0.28743,3:0.65161):0.03131,4:0.68293);
[3]((2:0.36418,1:0.36418):0.28743,(3:0.43293,4:0.43293):0.21869);
[12]((1:0.25173,2:0.25173):0.39989,(3:0.43293,4:0.43293):0.21869);
```

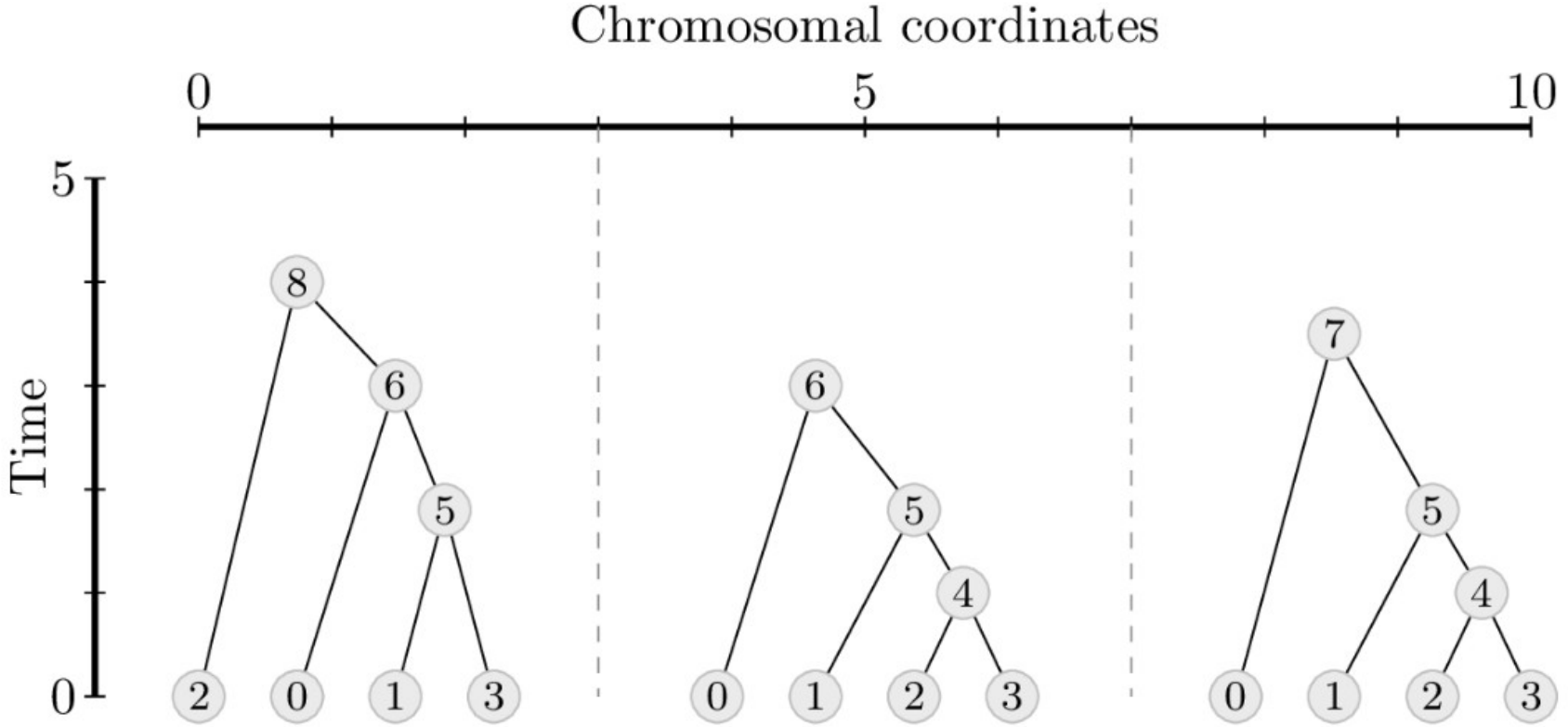





H. m. rosina (ros)
H. c. chioneus (chi)
H. m. melpomene (mpg)
H. c. zelinde (zel)
H. m. vulcanus (vul)
H. m. malleti (mal)
H. t. florencia (flo)
H. t. thelxinoe (txn)
H. m. amaryllis (ama)
H. cydno
H. timareta
H. melopmene
chioneus
zelinde
florencia
thelxinoe
rosina
vulcanus
malleti
amaryllis
melpomene
H. numata

Nodes	
id	time
0	0.0
1	0.0
2	0.0
3	0.0
4	1.1
5	1.8
6	3.0
7	3.5
8	4.0

Edges			
left	right	parent	child
3.0	10.0	4	2
3.0	10.0	4	3
0.0	10.0	5	1
0.0	3.0	5	3
3.0	10.0	5	4
0.0	7.0	6	0
0.0	7.0	6	5
7.0	10.0	7	0
7.0	10.0	7	5
0.0	3.0	8	2
0.0	3.0	8	6



Edges			
left	right	parent	child
3.0	10.0	4	2
3.0	10.0	4	3
0.0	10.0	5	1
0.0	3.0	5	3
3.0	10.0	5	4
0.0	7.0	6	0
0.0	7.0	6	5
7.0	10.0	7	0
7.0	10.0	7	5
0.0	3.0	8	2
0.0	3.0	8	6