

Evolução da característica fenotípica em árvores e redes

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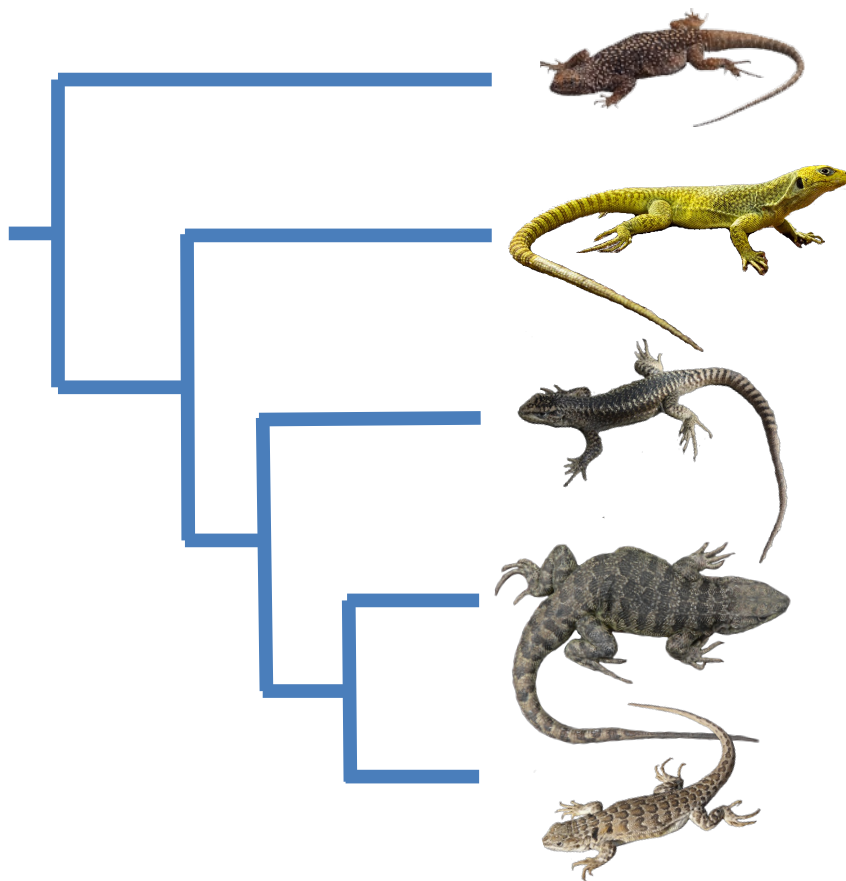
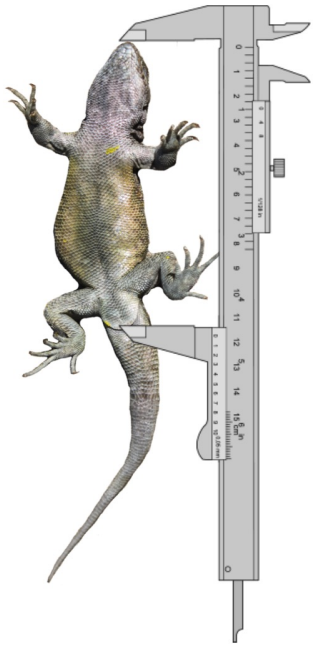
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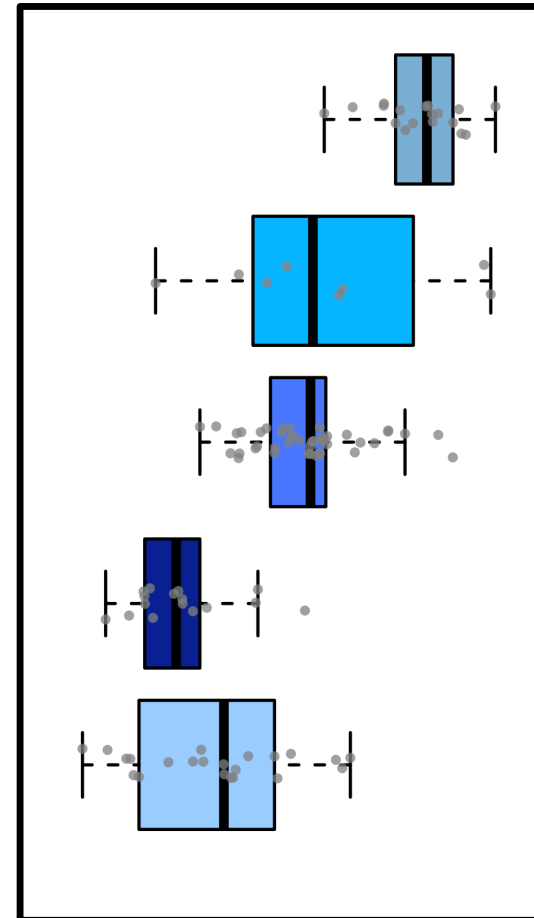
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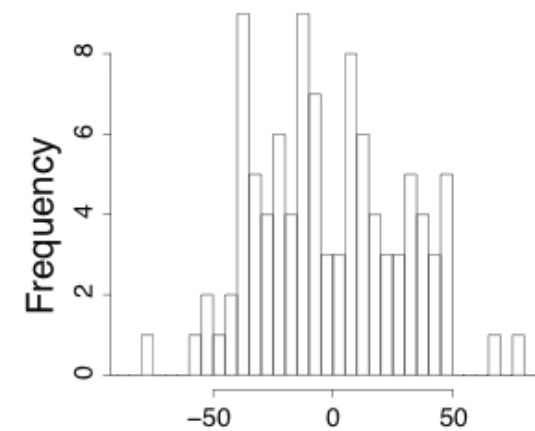
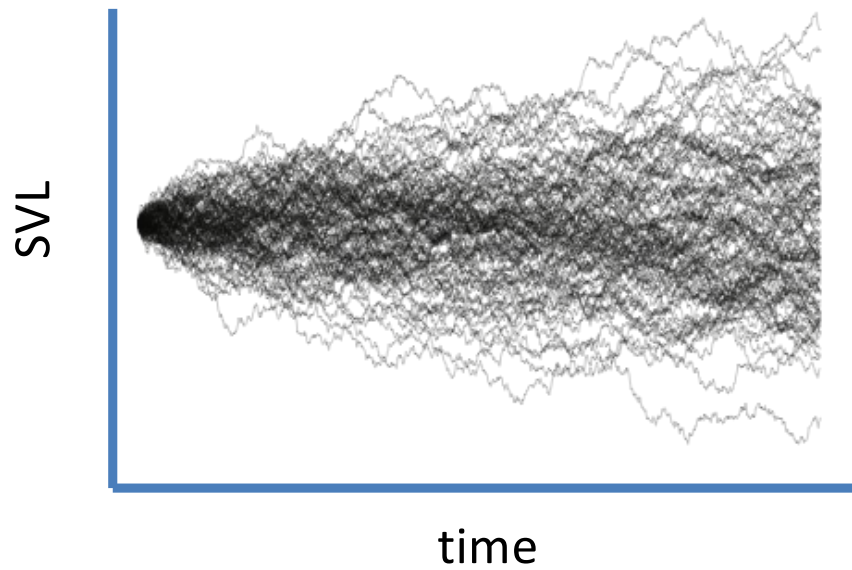
Variação morfológica



Snout-vent length (SVL)



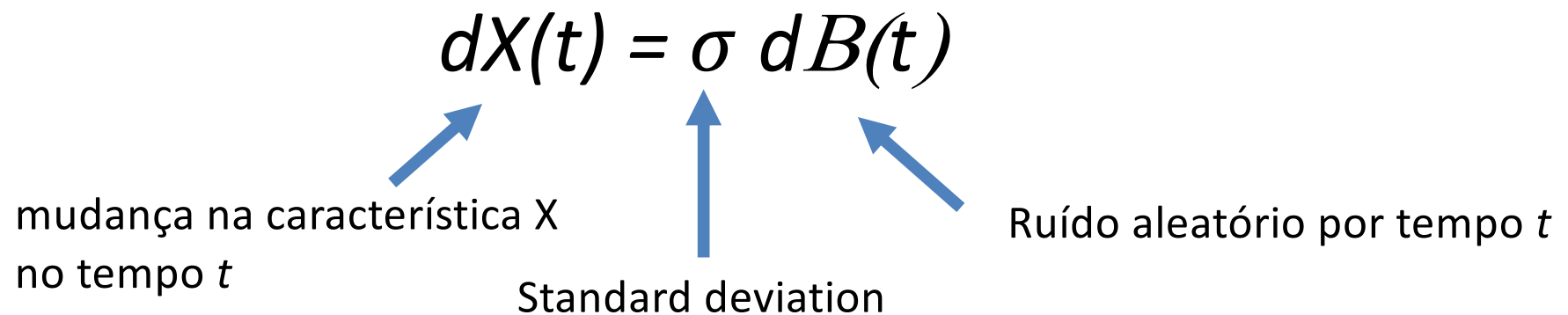
Evolução aleatória de características fenotípicas



Harmos 2019 “Phylogenetic Comparative Methods” Book
<https://lukejharmon.github.io/pcm/pdf/phylogeneticComparativeMethods.pdf>

Brownian motion

Modela a evolução contínua de uma característica ao longo do tempo. É um exemplo de modelo de “caminhada aleatória” porque o valor da característica muda aleatoriamente (direção e distância).

$$dX(t) = \sigma dB(t)$$


mudança na característica X
no tempo t

Standard deviation

Ruído aleatório por tempo t

Brownian motion

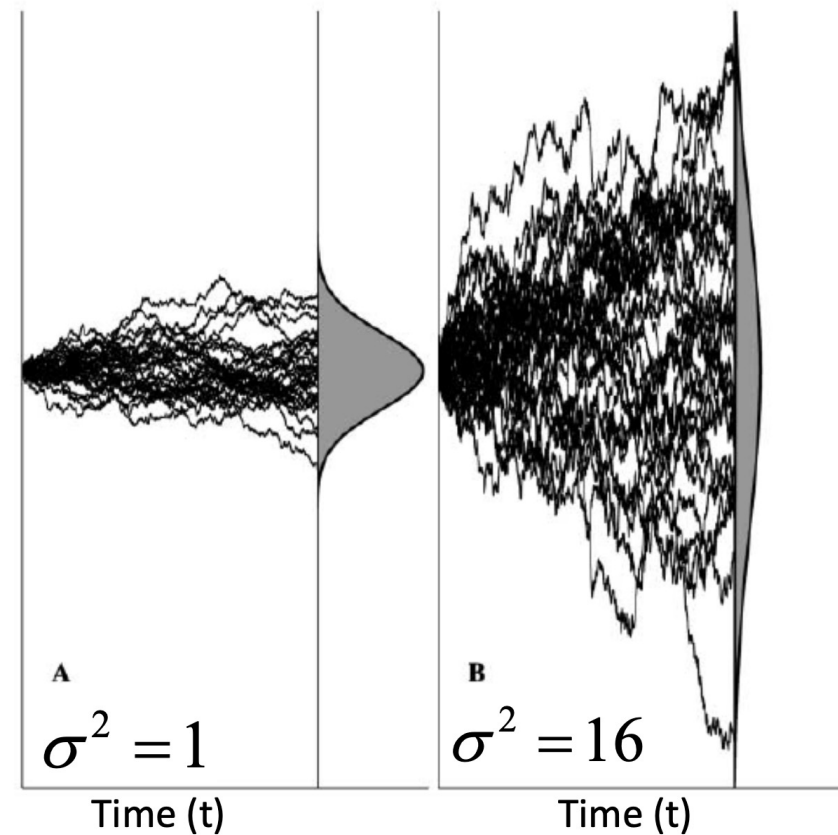
$$dX(t) = \sigma dB(t)$$

mudança na característica X
no tempo t

Standard deviation

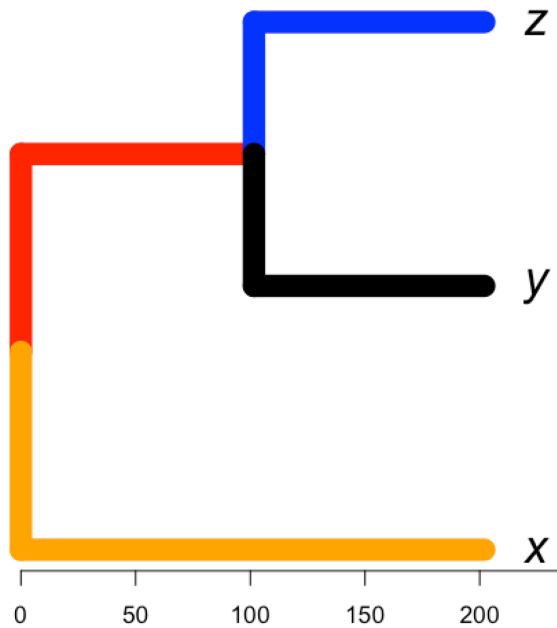
Ruído aleatório por tempo t

- $X(0) = 0$
- X_t é contínuo
- $X_t - X_s \sim N(0, t-s)$, onde
 $N(\mu, \sigma^2)$ é uma
distribuição normal com
média μ e variância σ^2

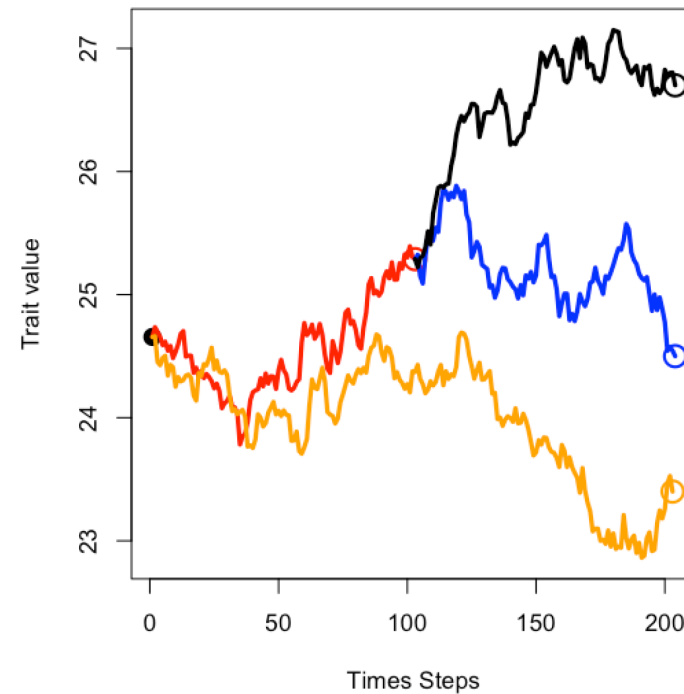


Evolução aleatória de características fenotípicas

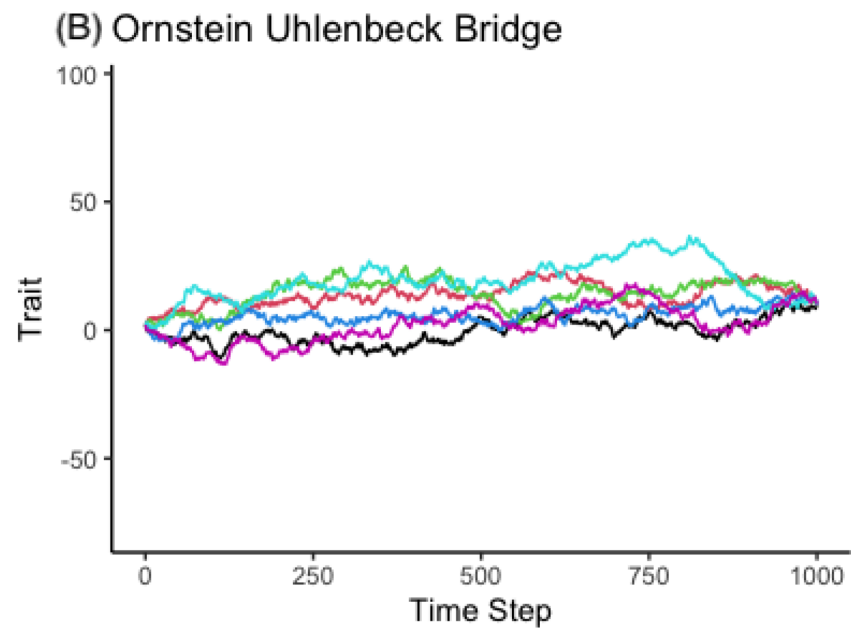
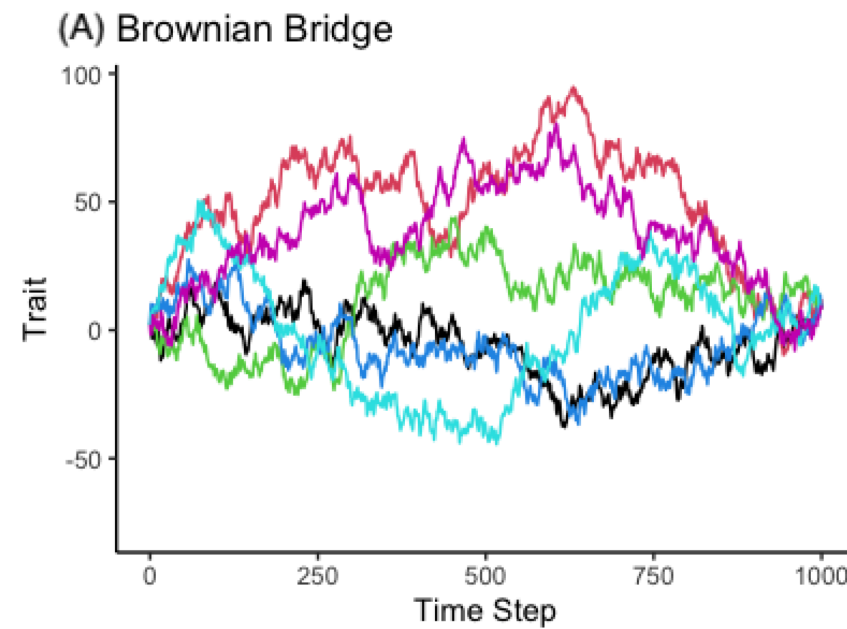
A 3 Taxa Time-calibrated Phylogenetic Tree



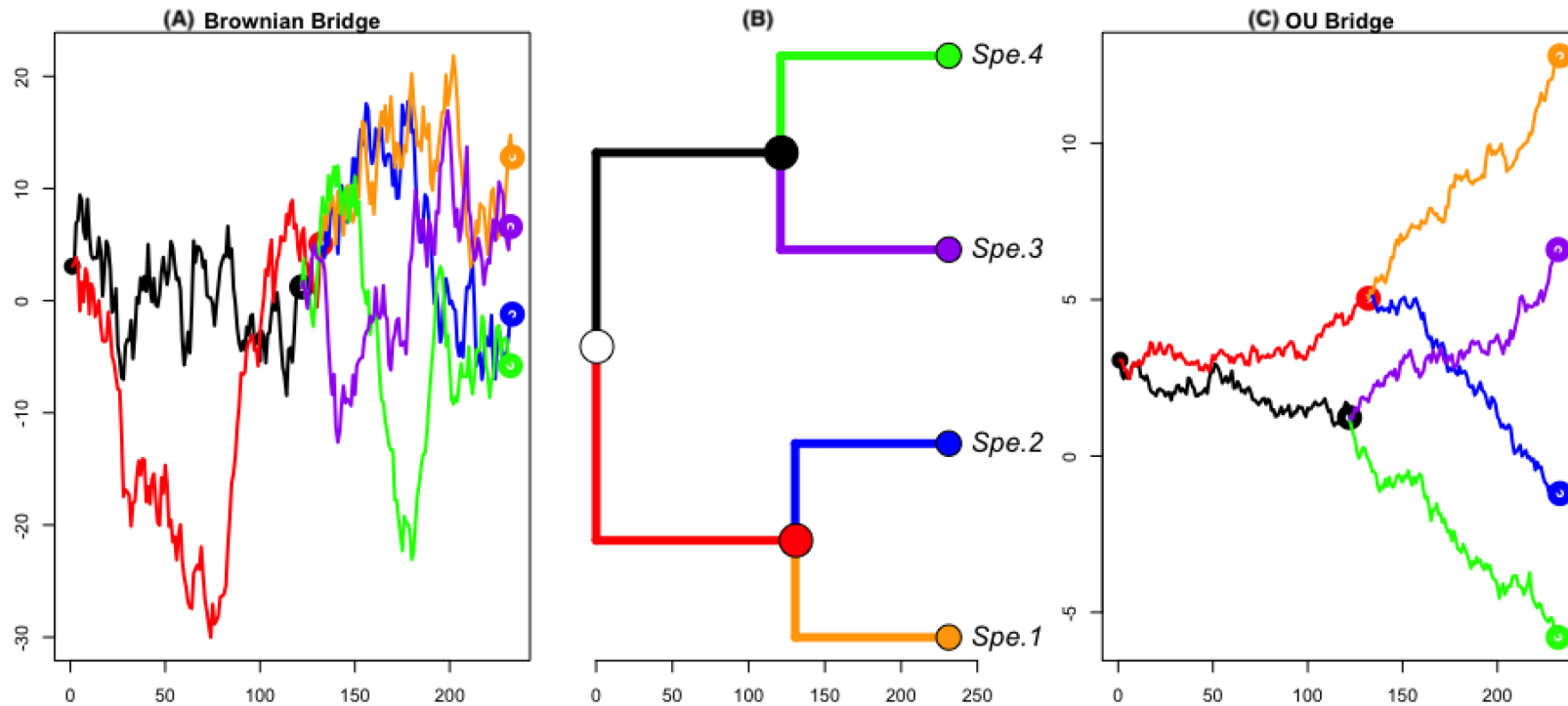
A 3 Taxa Trait Evolution Trajectories on Tree



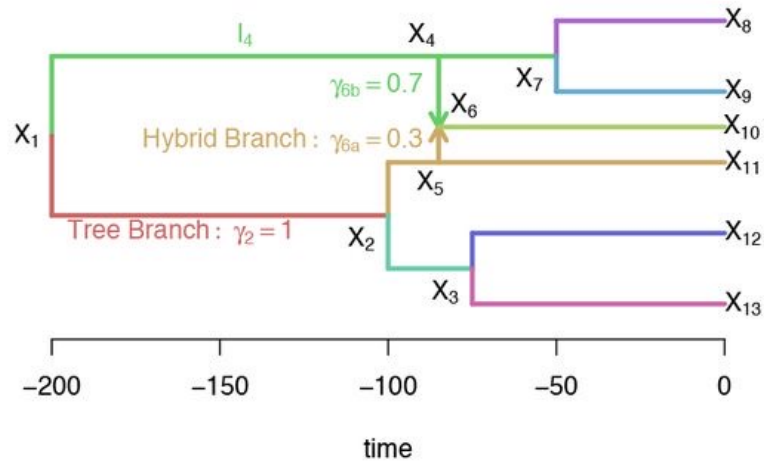
Evolução das características fenotípicas



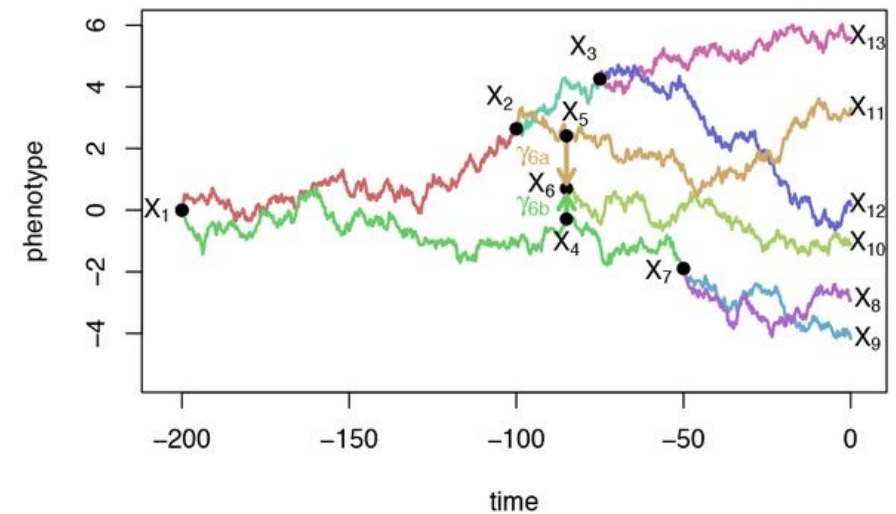
Evolução das características fenotípicas



Evolução de características fenotípicas em redes

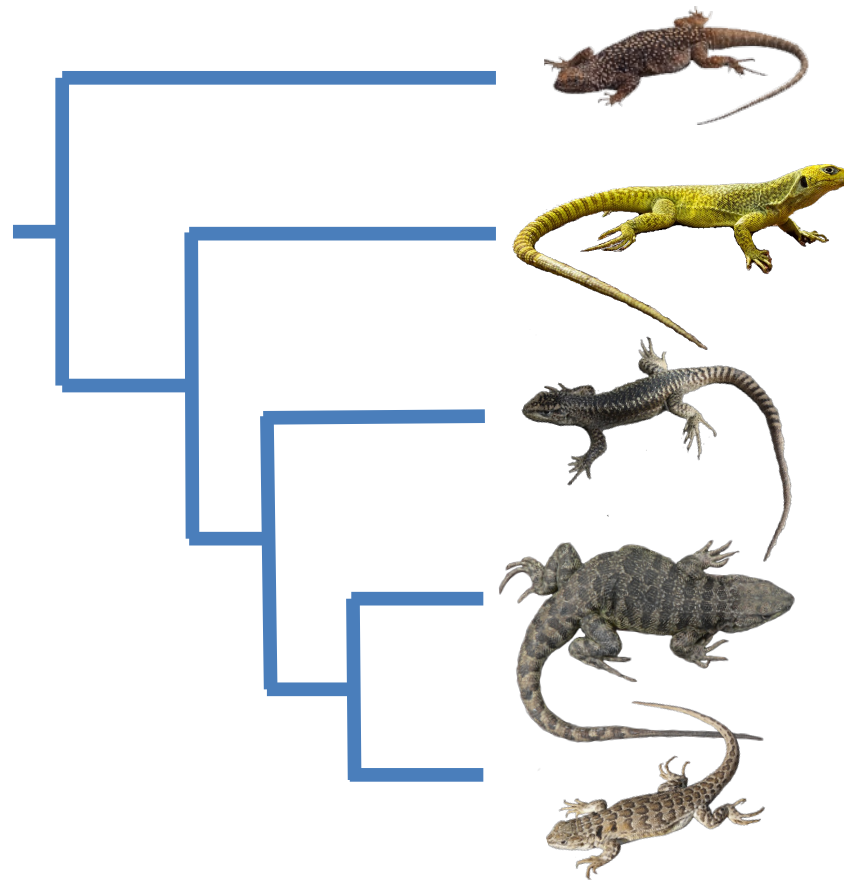


(a) A time-calibrated phylogenetic network



(b) BM on the branches of the network

Bora praticar!!



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