

Mutations


Coalescent theory

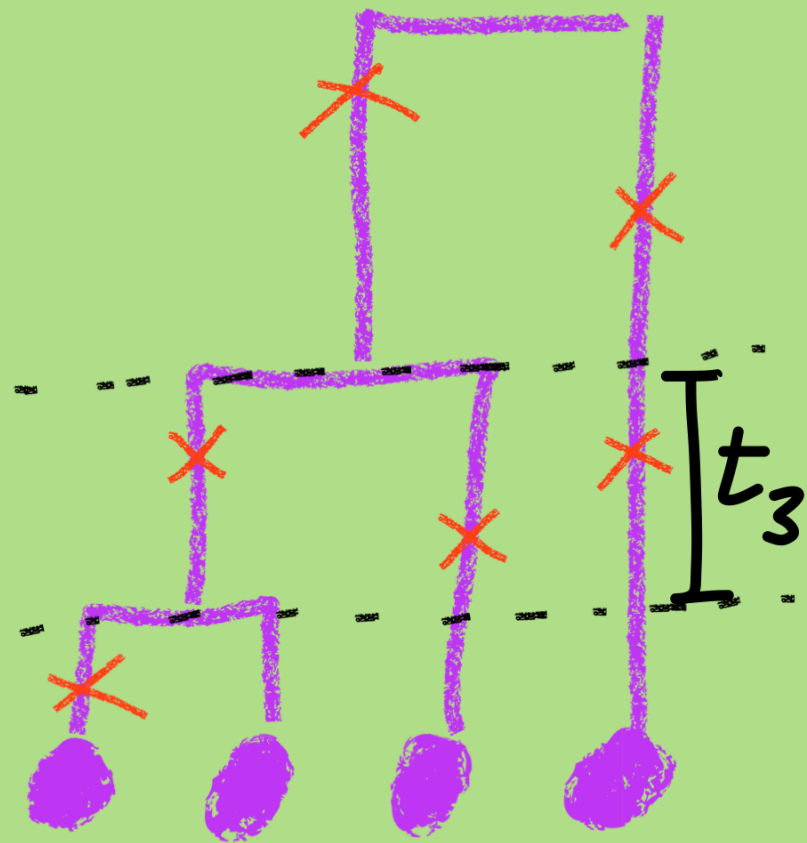
t



mutations on branch of length t
is Poisson rv w/ mean μt

$$IP(k | t) = \frac{(\mu t)^k e^{-\mu t}}{k!}$$

 mutations per genome per generation



mutations in intercoalescent interval i , of length t_i , is Poisson rv w/mean

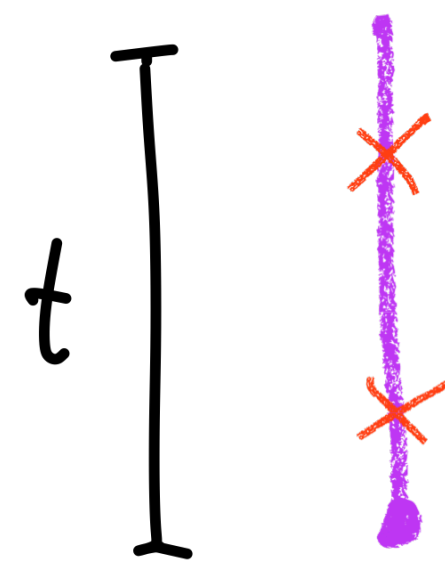
$i \mu t_i$

lines in
interval i

duration of
interval i

Coalescent theory

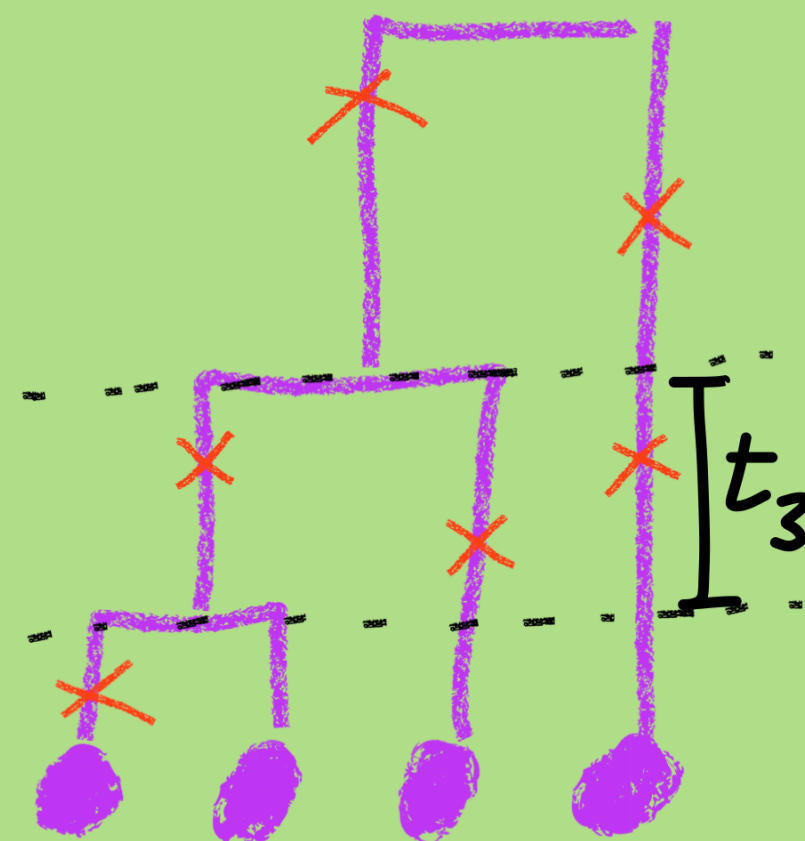
Mutations



mutations on branch of length t
is Poisson rv w/ mean μt

$$IP(k | t) = \frac{(\mu t)^k e^{-\mu t}}{k!}$$

↑ mutations per genome per generation



mutations in intercoalescent interval i , of length t_i , is Poisson rv w/mean

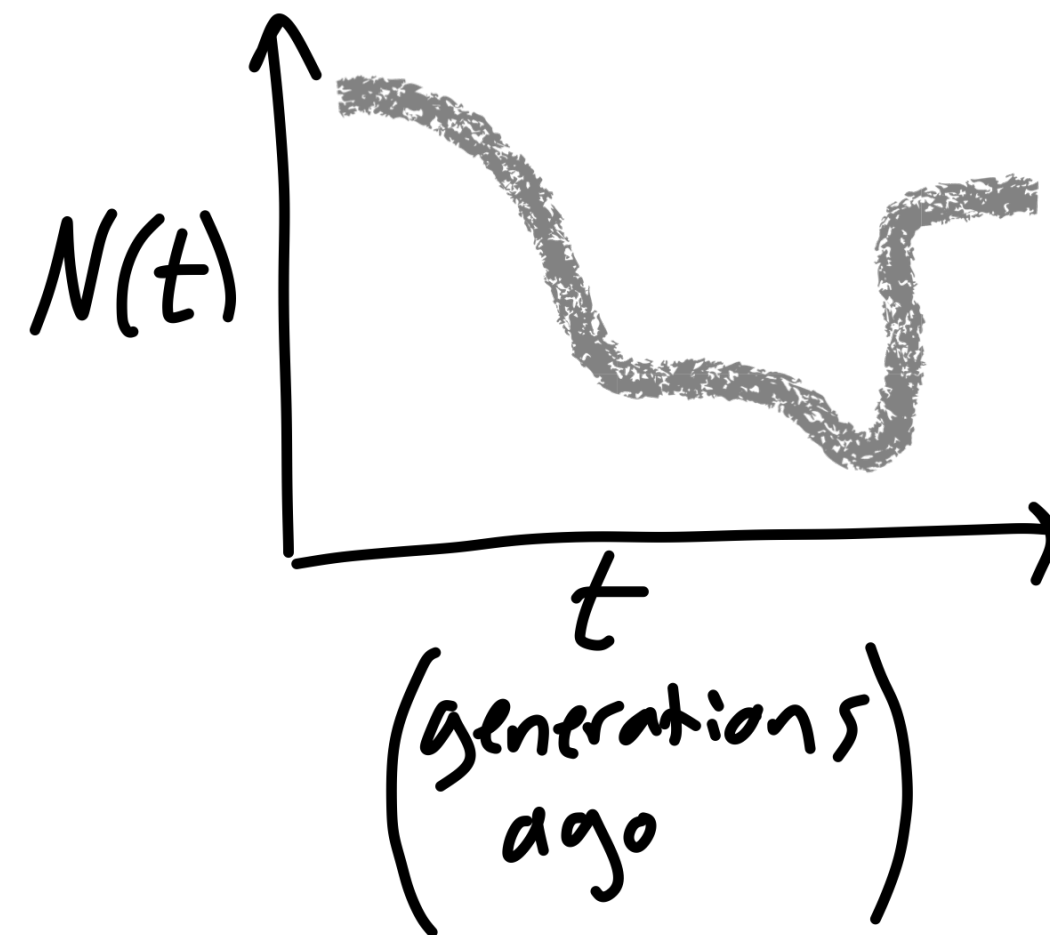
$$i \mu t_i$$

↑ # lines in interval i ↑ duration of interval i

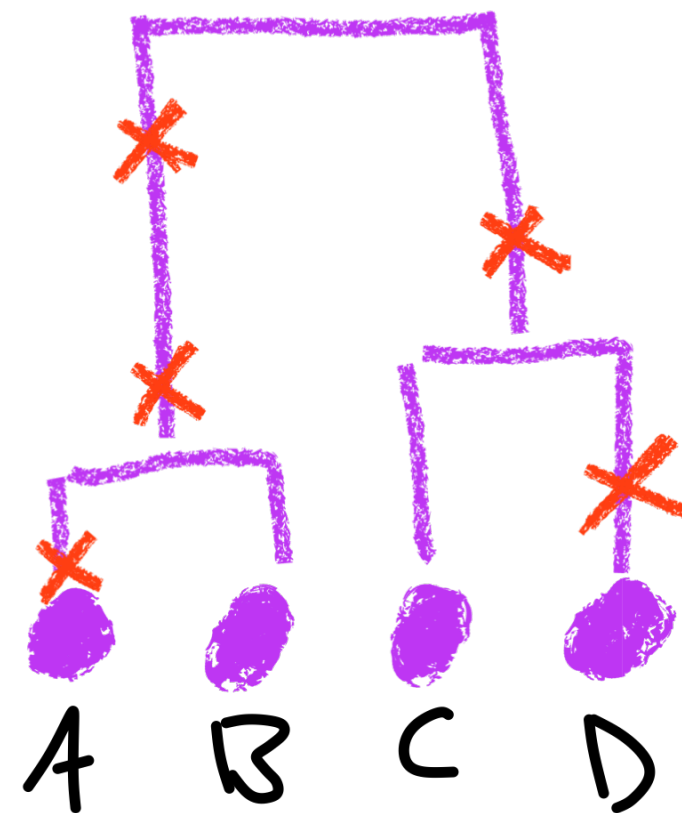
Coalescent theory

Genetic diversity

Demographic history



Coalescent history



Data!

