Mutations

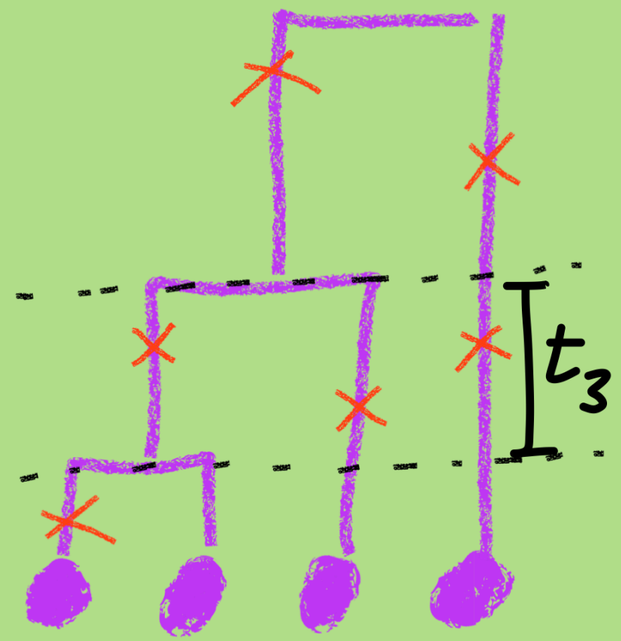
Coalescent theory

t

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

$$\mathbb{P}(k \mid t) = \frac{(\mu t)^k e^{-\mu t}}{k!}$$

μ ← mutations per genome per generation



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

$$i\mu t_i$$

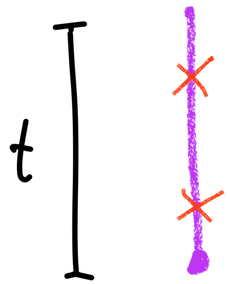
i: # lines in interval i

t_i: duration of interval i

15

Coalescent theory

Mutations



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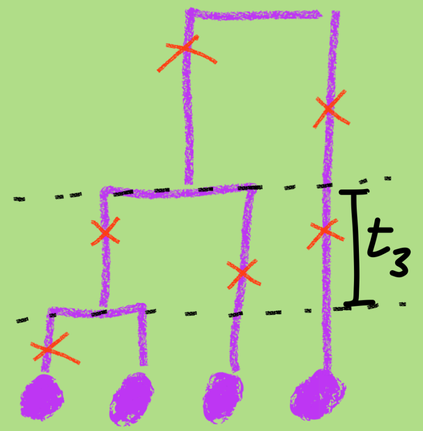

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Coalescent theory

Genetic diversity