Coalescent inference of HIV transmission history

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T-6: Theoretical Biology and Biophysics
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Why this project?

- Prevalence of HIV
- Supplementing existing tracing methods
  - Interviews
  - Contact tracing
- Finding signal in genome sequences

Just a test for now.
Some sort of image...of HIV? Just to keep them from getting too bored on the FIRST slide.

What are we looking for?

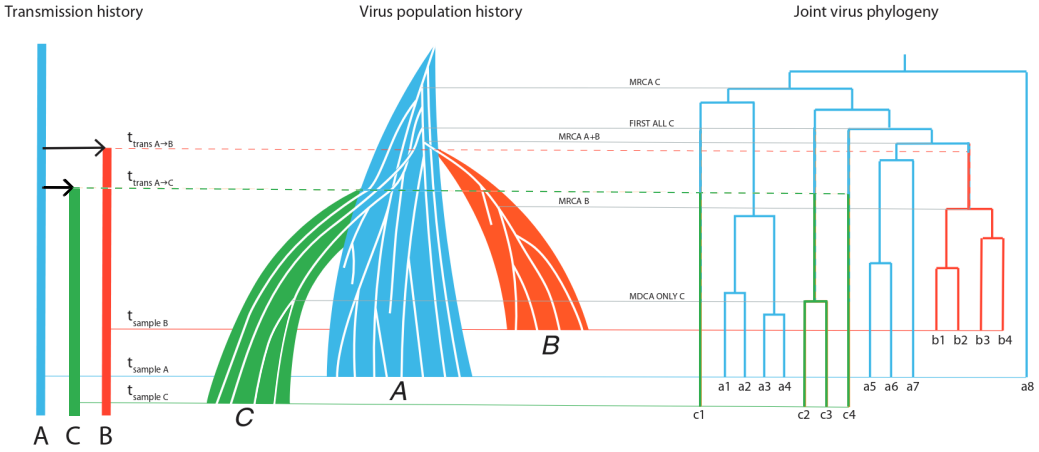
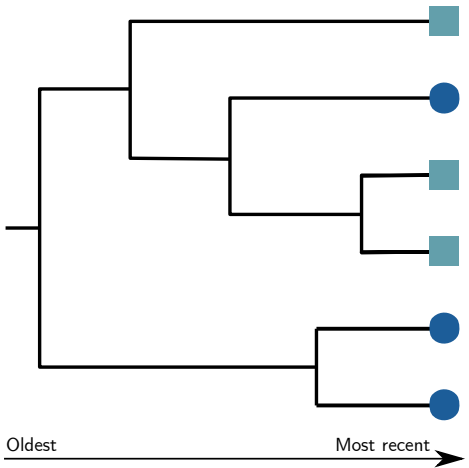


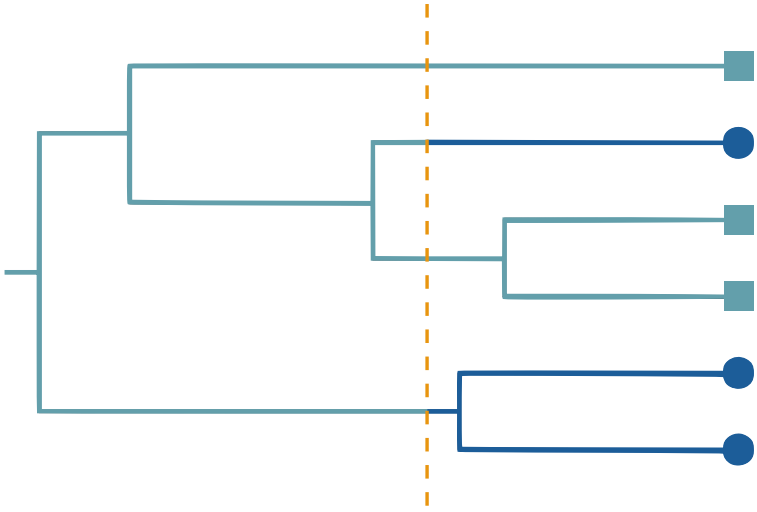
Image: Leitner et al. GET FULL CITATION ASAP

Inferring information from a tree

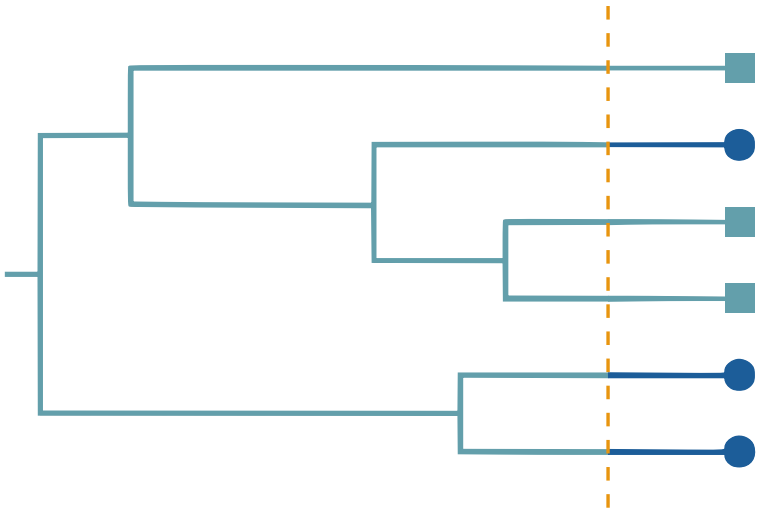


- Tips represent individual viral sequences
- Shows the evolutionary distance between individuals
- What can we infer about a single transmission time?

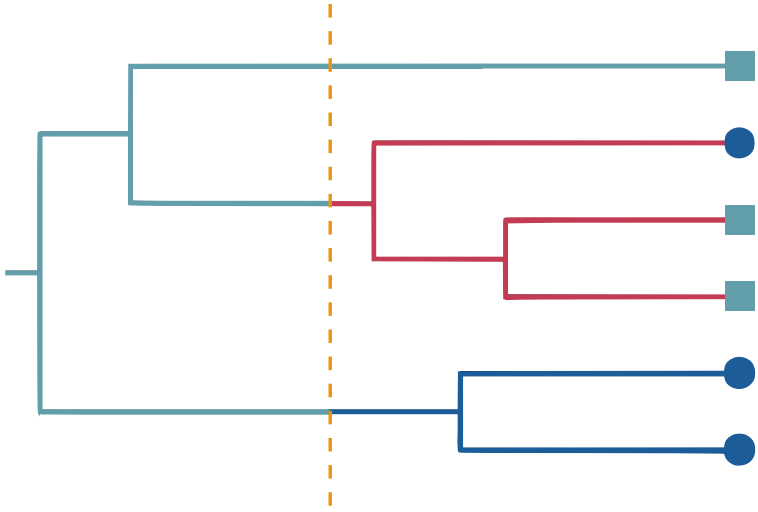
Inferring information from a tree



Inferring information from a tree



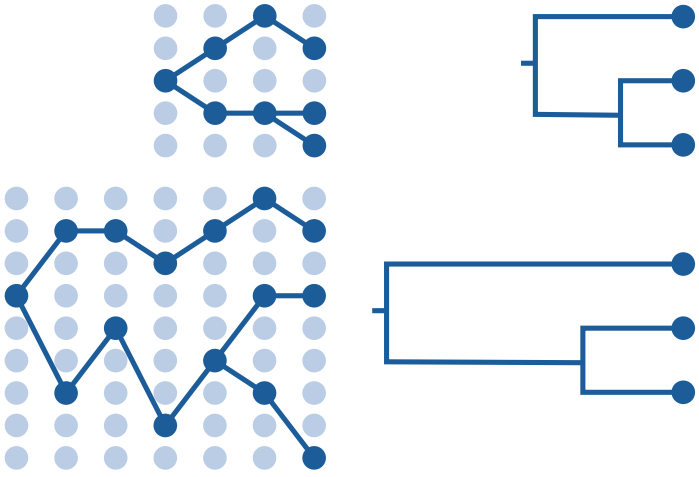
Inferring information from a tree



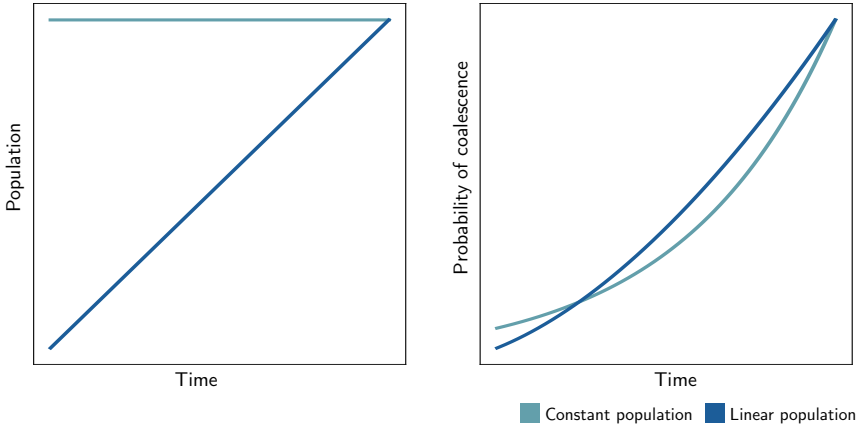
Coalescent modeling:
Node times as a function of population

Relationship between population and samples

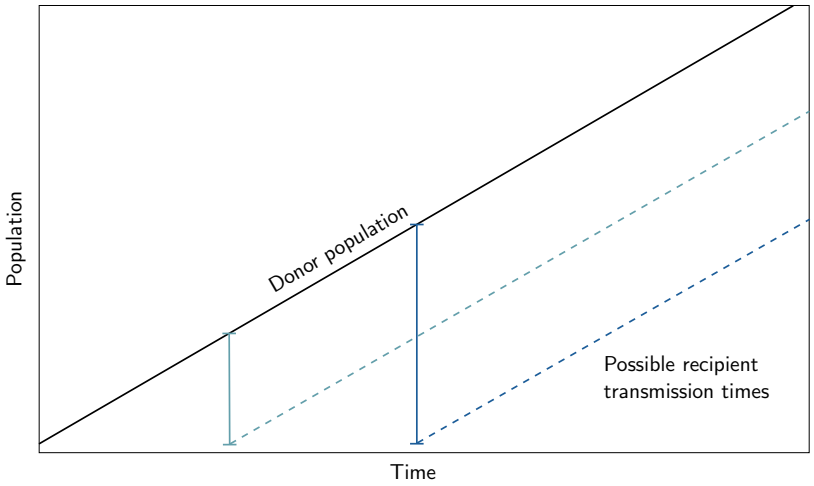
Large N causes node times to be further apart, stretching the tree



Effect of changing population size



Predicting transmission time on a changing population



Results

What I did...
In this, I could show what's going on for my

Next steps

In the coming weeks...

- Getting linear population to...um, work.
- What else was I even thinking about lol

Next steps

Next year (and later)...