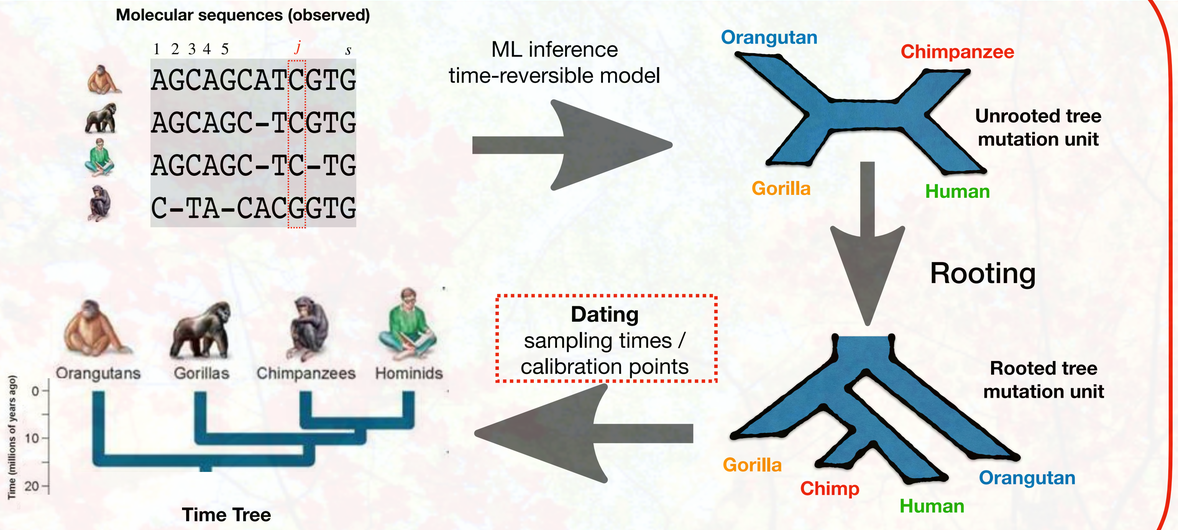
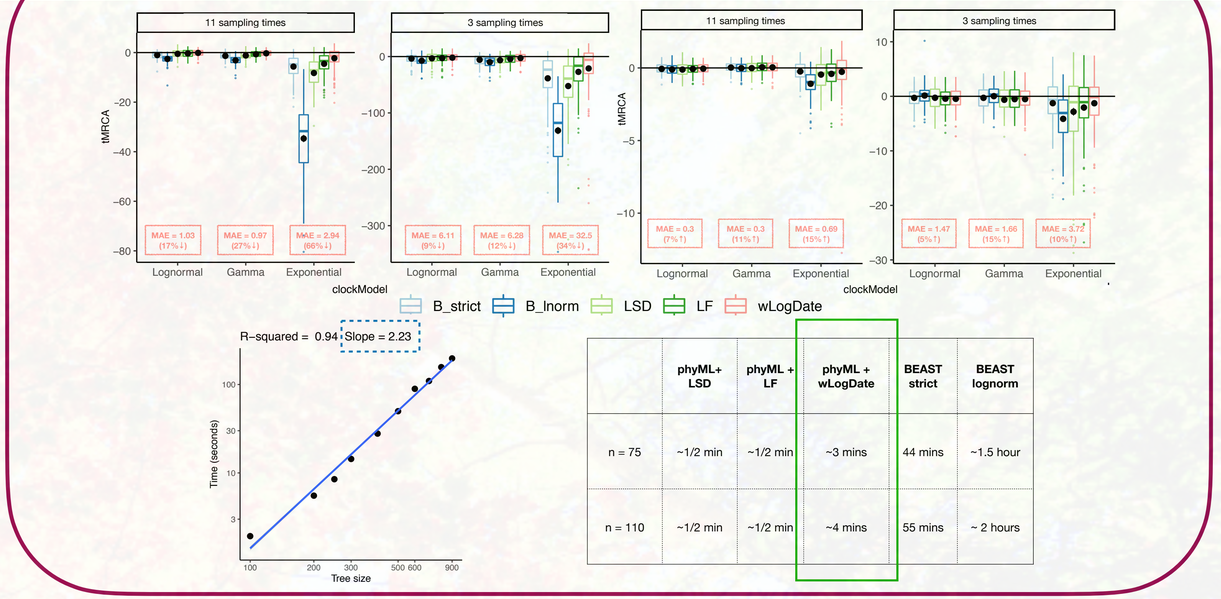
Molecular Dating

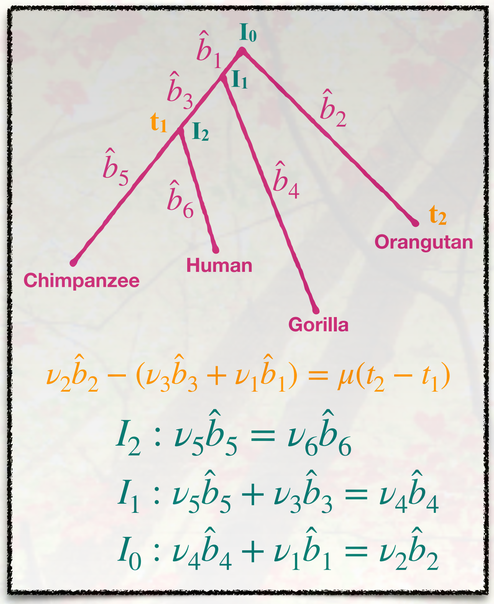


Viruses (simulated)



	phyML+ LSD	phyML + LF	phyML + wLogDate	BEAST strict	BEAST lognorm
n = 75	~1/2 min	~1/2 min	~3 mins	44 mins	~1.5 hour
n = 110	~1/2 min	~1/2 min	~4 mins	55 mins	~ 2 hours

wLogDate Method



$$\nu_2\hat{b}_2 - (\nu_3\hat{b}_3 + \nu_1\hat{b}_1) = \mu(t_2 - t_1)$$

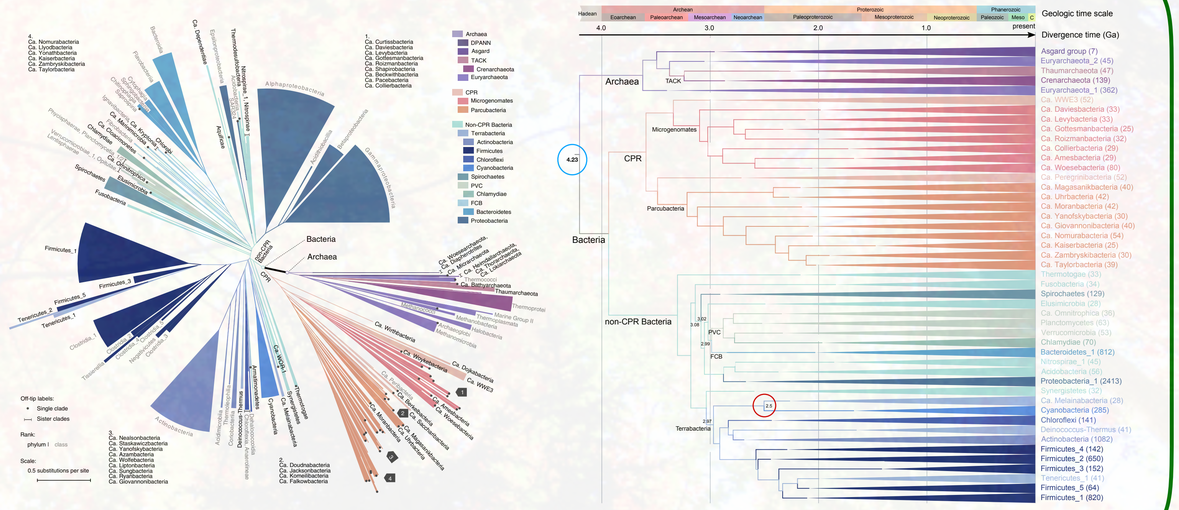
$$I_2 : \nu_5\hat{b}_5 = \nu_6\hat{b}_6$$

$$I_1 : \nu_5\hat{b}_5 + \nu_3\hat{b}_3 = \nu_4\hat{b}_4$$

$$I_0 : \nu_4\hat{b}_4 + \nu_1\hat{b}_1 = \nu_2\hat{b}_2$$

$$\min \sum_i \sqrt{\tilde{b} + \hat{b}_i} \log^2 \nu_i$$

Subject to

- calibration points
- ultrametricity / sampling times

10k Bacteria (real)