

Maximum likelihood trajectories for continuous-time Markov chains

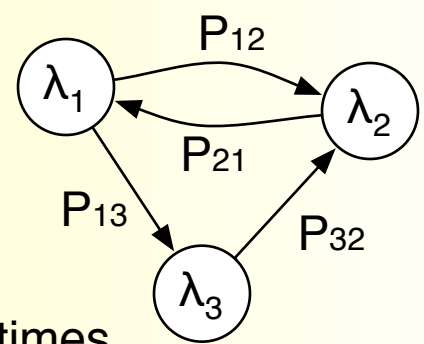
Theodore J. Perkins -- Poster T24

Continuous-time Markov chains

Discrete state

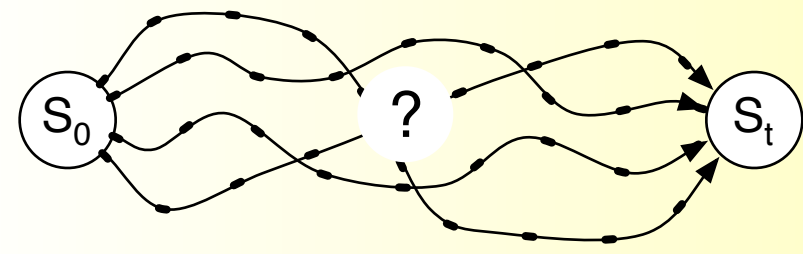
Transition probabilities

Exponential dwell times

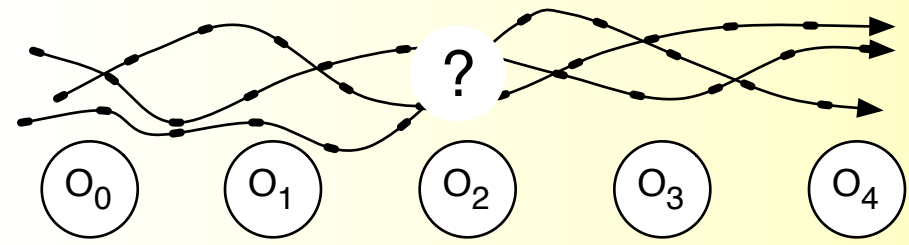


Maximum likelihood trajectory inference

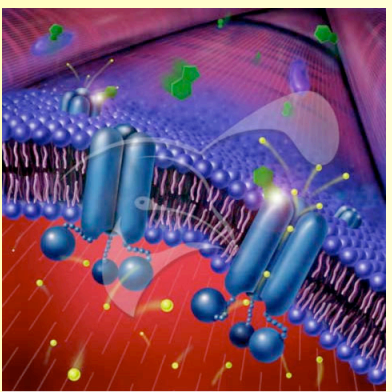
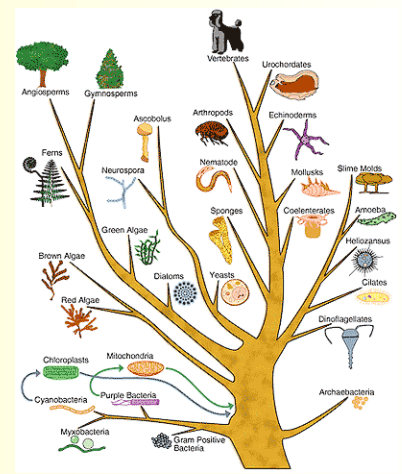
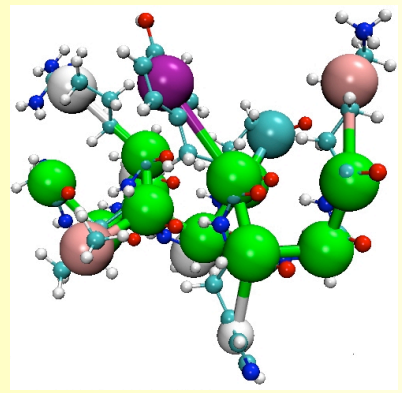
From state observed at two times:



From series of noisy/partial observations:



Many applications



Efficient dynamic programming solutions!

Optimal solutions have surprising properties!