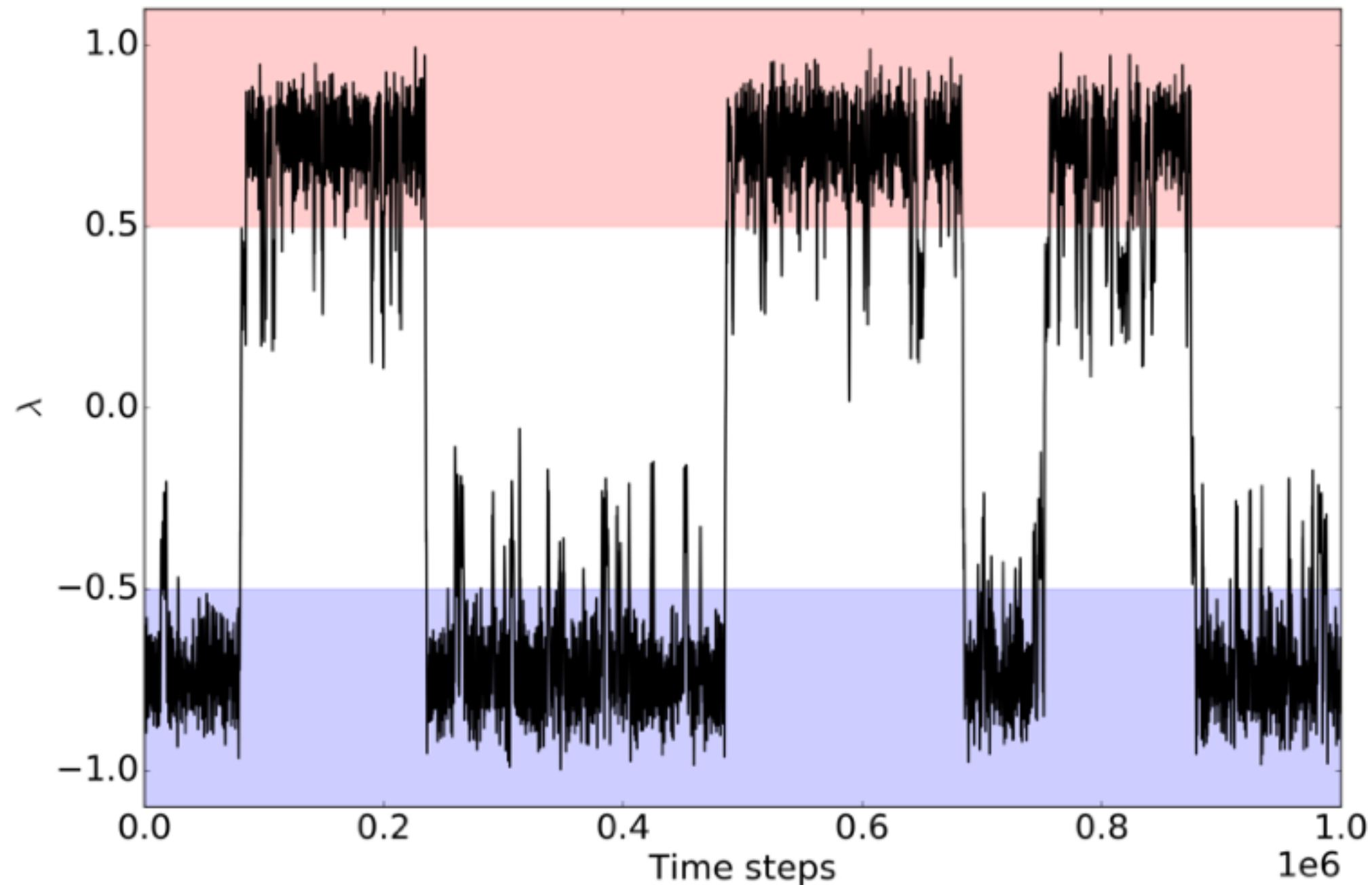
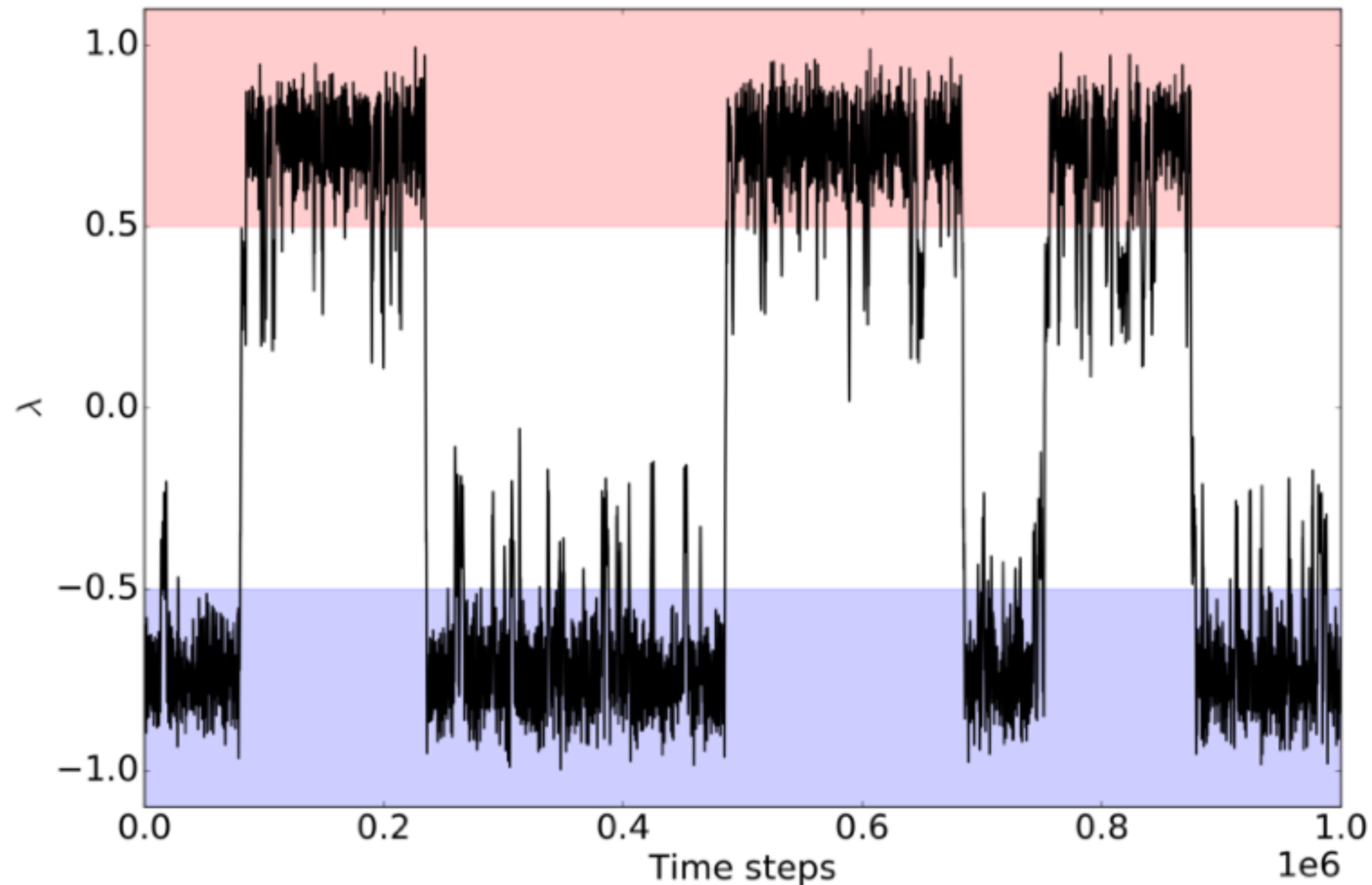


# What makes an event “rare”?



Separation of time scales:  
fundamental time scale vs. frequency of event

# What makes an event “rare”?



Biomolecular Systems:  $\sim 1/\text{ms}$  is common  
Requires  $10^{12}$  time steps of  $\sim 1$  fs