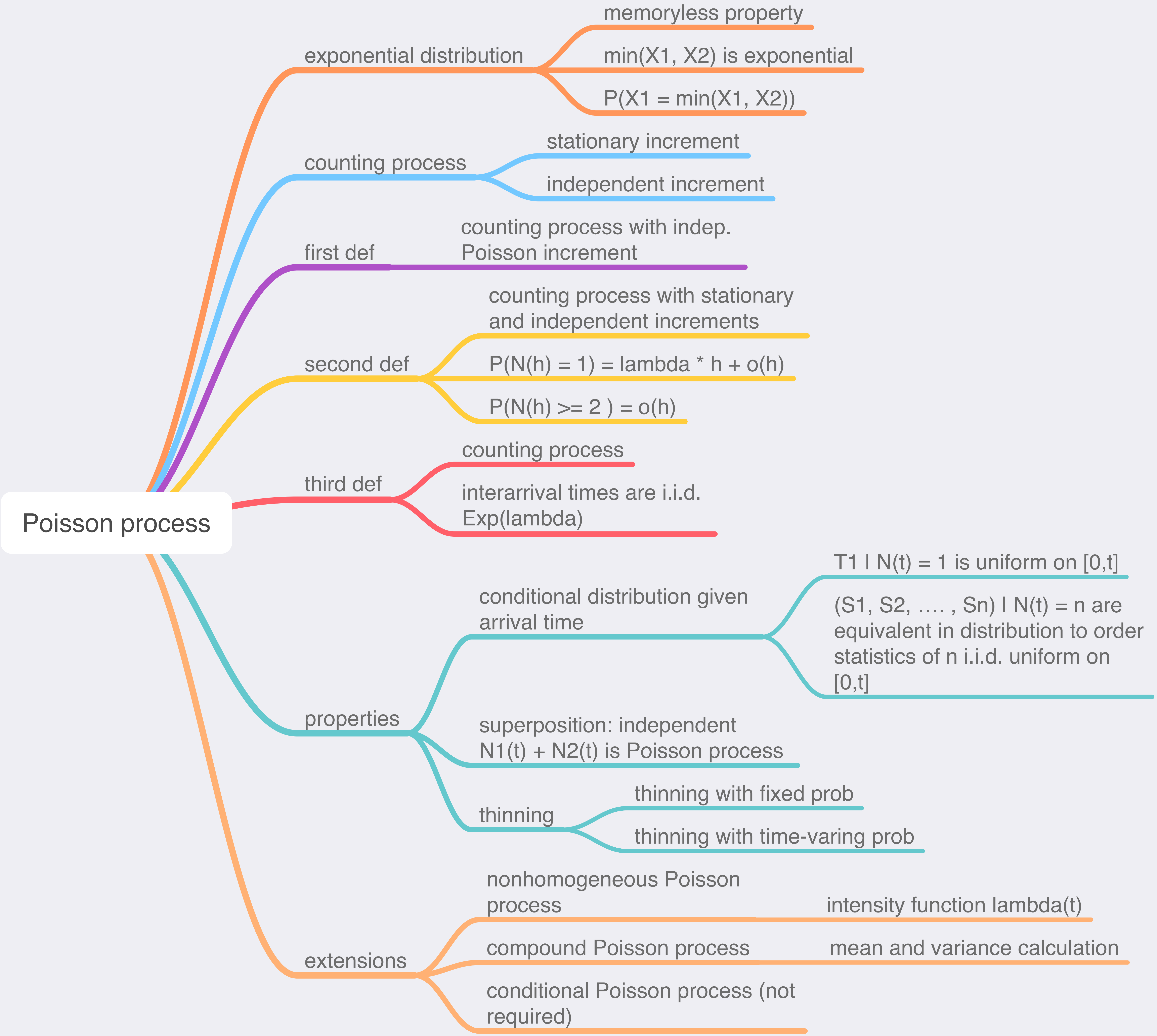
Poisson process
exponential distribution
memoryless property
min(X1, X2) is exponential
P(X1 = min(X1, X2))
counting process
stationary increment
independent increment
first def
counting process with indep. Poisson increment
second def
counting process with stationary and independent increments
P(N(h) = 1) = lambda * h + o(h)
P(N(h) >= 2) = o(h)
third def
counting process
interarrival times are i.i.d. Exp(lambda)
properties
conditional distribution given arrival time
T1 | N(t) = 1 is uniform on [0,t]
(S1, S2, …. , Sn) | N(t) = n are equivalent in distribution to order statistics of n i.i.d. uniform on [0,t]
superposition: independent N1(t) + N2(t) is Poisson process
thinning
thinning with fixed prob
thinning with time-varing prob
extensions
nonhomogeneous Poisson process
intensity function lambda(t)
compound Poisson process
mean and variance calculation
conditional Poisson process (not required)