

1. $X(t)$ is a simple birth process with saturation. The parameters are $\lambda_n = n\alpha, n = 0, 1, \dots, N-1, \lambda_N = 0$.
2. (a) $X(t)$ is a death process. The parameters are $\mu_k = (N-k)\theta$ for $k < N, k < M$. $\mu_k = 0$ else.
(b)