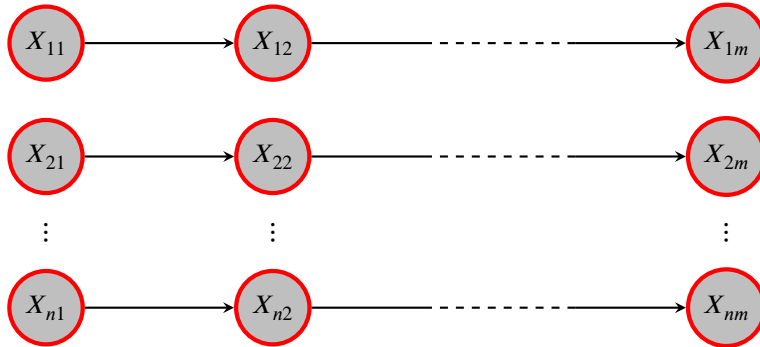


8.1 Location Privacy

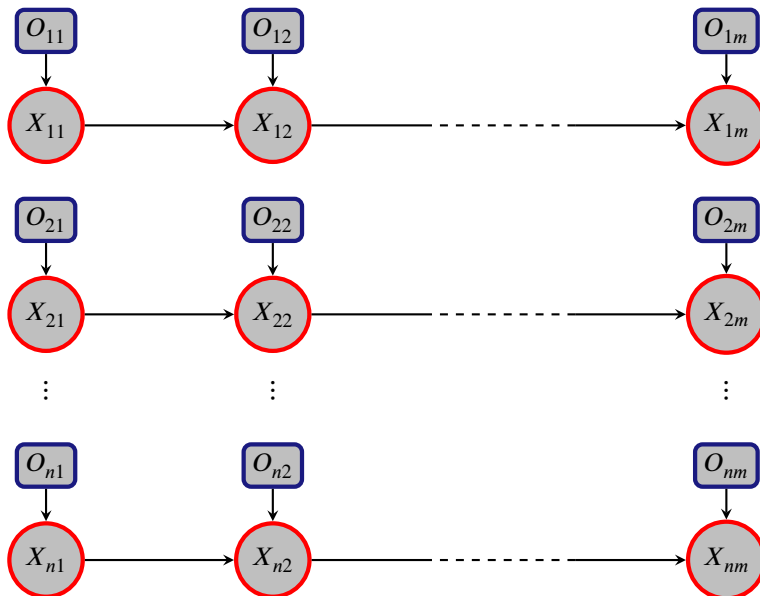
8.1.a Bayesian Network Model



Joint Distribution P_X

$$P_{X_{i,t}} = \prod_{i=0}^n f_i(X_{i,t-1})$$

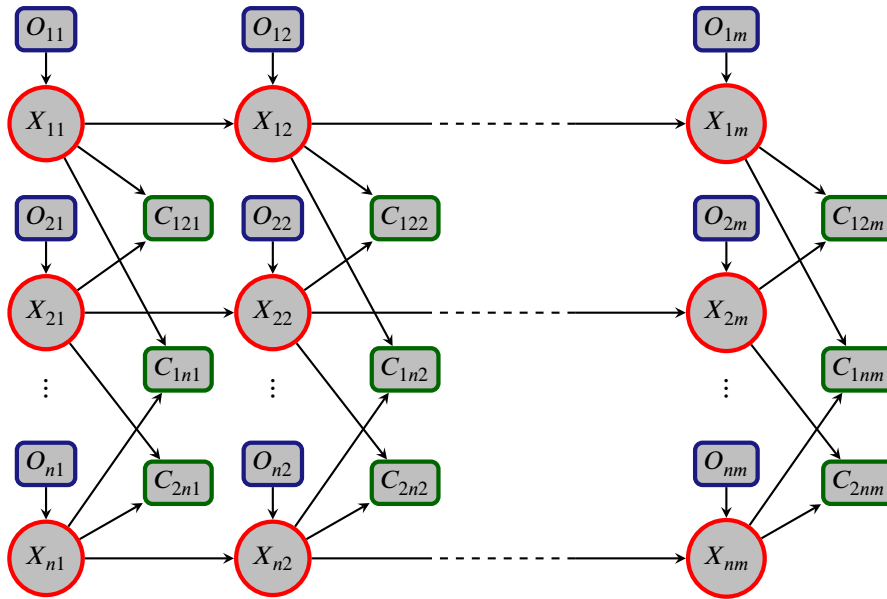
8.1.b MECHANISM: Report Obfuscated Location



Joint Distribution P_X

$$P_{X_{i,t}} = \prod_{i=0}^n (1 - q) * f_i(X_{i,t-1}) * \frac{q}{R}$$

8.1.c MECHANISM: Report Pairwise Co-Locations



Joint Distribution P_X

$$P_{C_{i,j,t}} = P[X_{i,t} = X_{j,t}, i \neq j] = \frac{P_{X_{i,t}} * P_{X_{j,t}}}{R}$$

$$P_{X_{i,t}} = \prod_{i=0}^n (1 - q) * f_i(X_{i,t-1}) * \frac{q}{R}$$