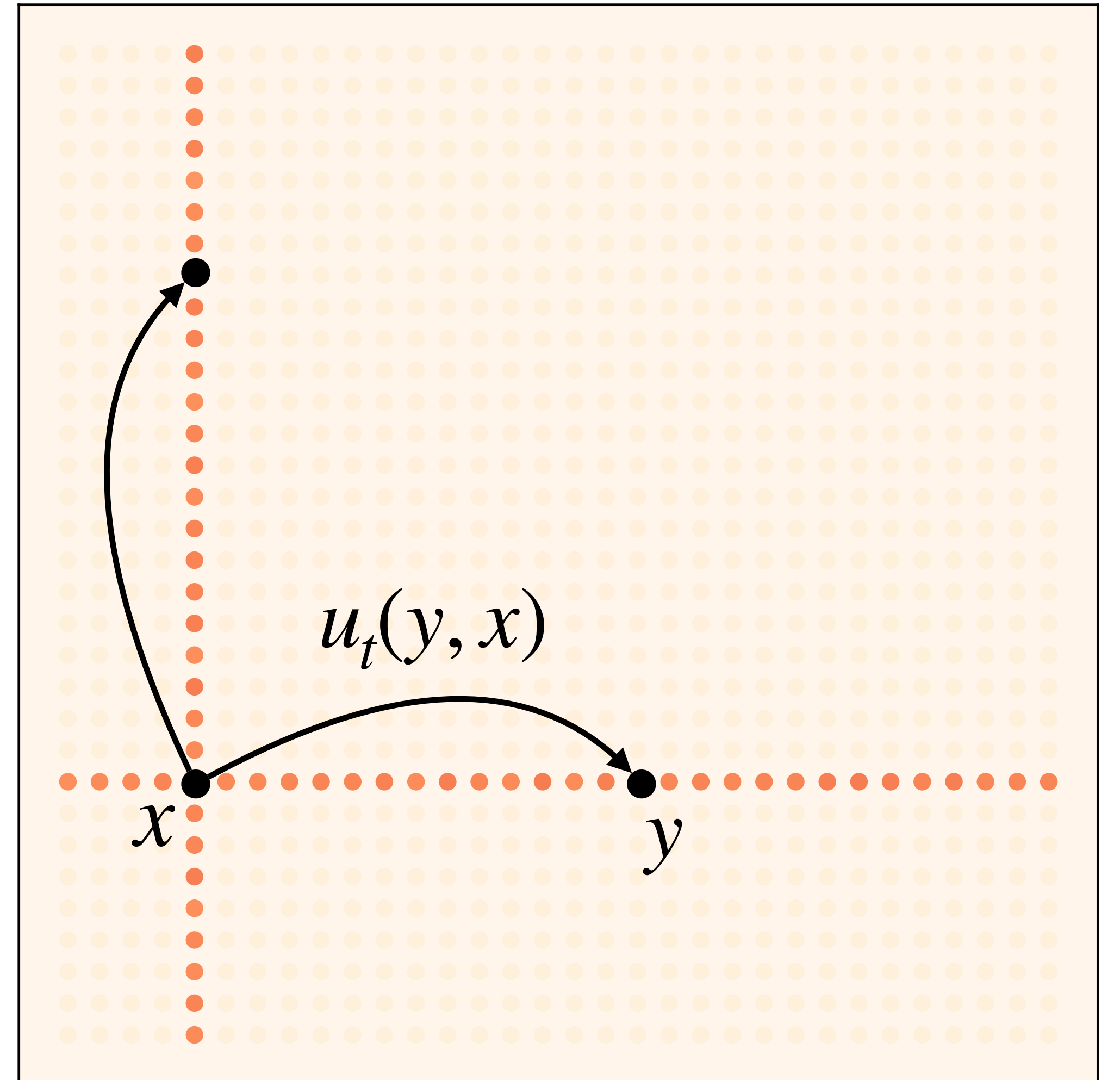


# Continuous Time Markov Chain

CTMC process  $(X_t)_{0 \leq t \leq 1}$  defined by:

Transition probability

$$\mathbb{P}(X_{t+h} = y \mid X_t = x) = \delta_x(y) + hu_t(y, x) + o(h),$$




# Sampling

**Algorithm:** CTMC Simulation

$X_0 \sim p$   **Sample initial point**

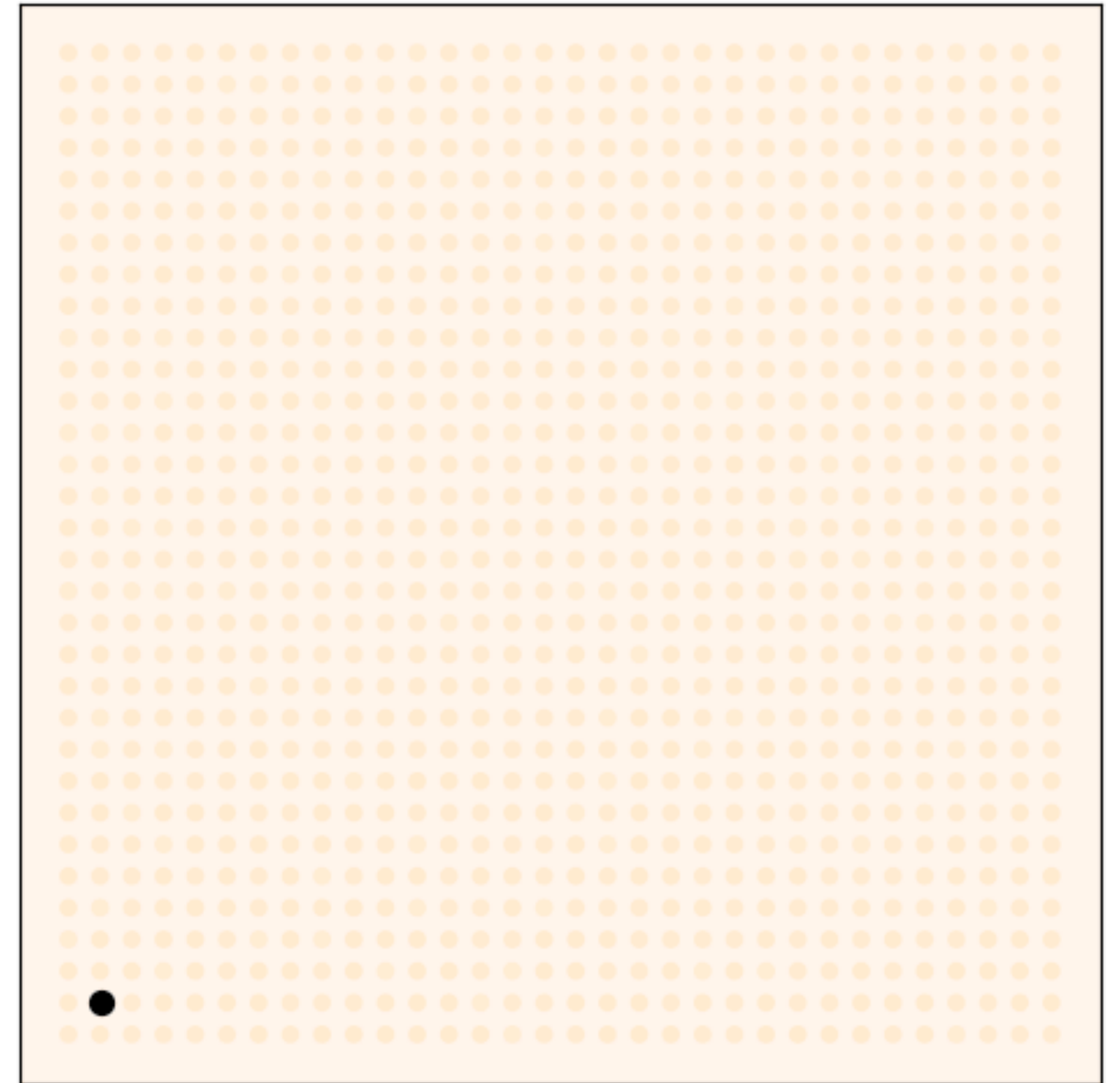
**While**  $t < 1$  **do**

$X_{t+h} \sim \delta_{X_t}(\cdot) + hu_t(\cdot, X_t)$   **Sample next state**

$t \leftarrow t + h$

**Return**  $X_1$

t=0.000



(Background) probability path