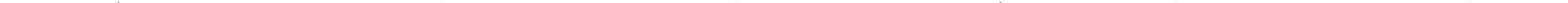
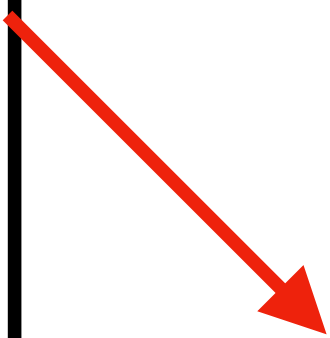
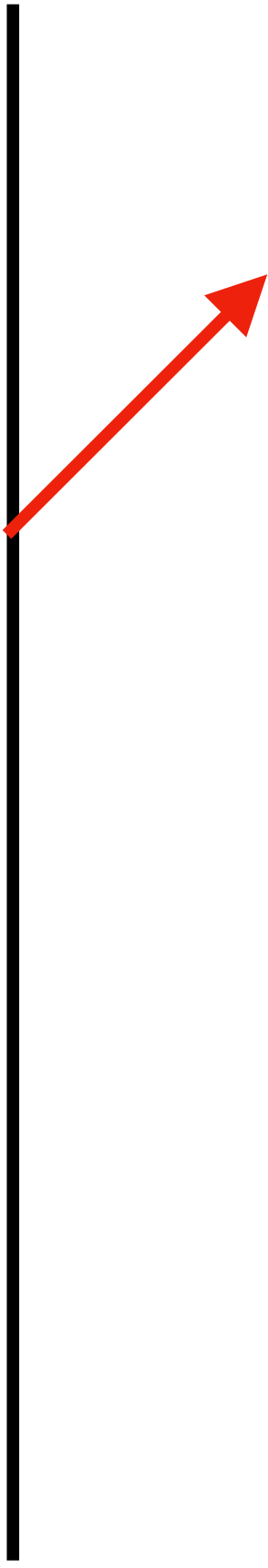
How perfect sampling? — Fills Algo



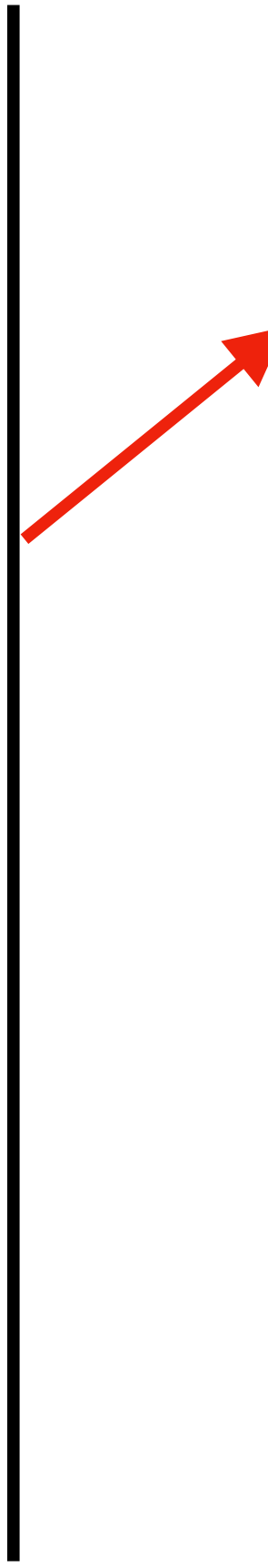
Relies on Acceptance Rejection Sampling



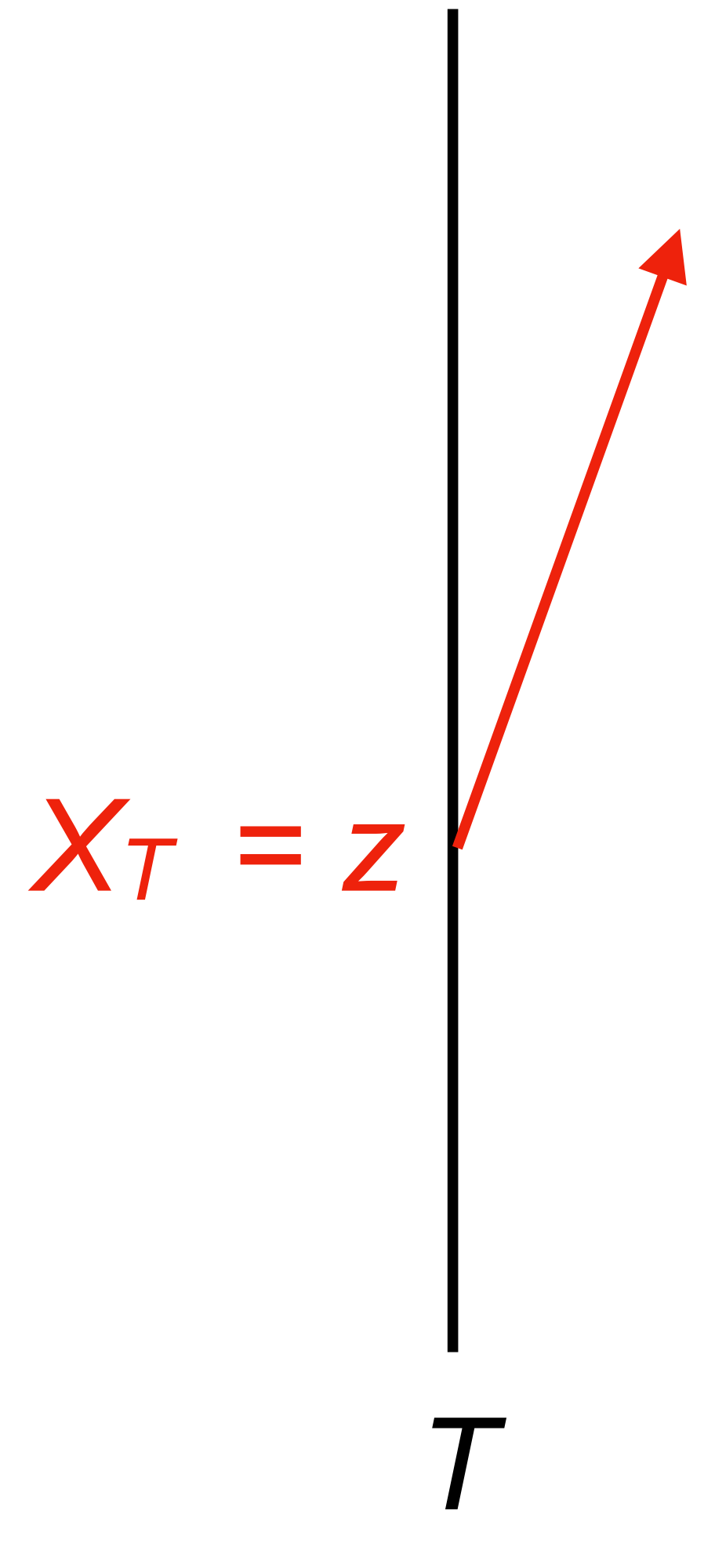
T-1

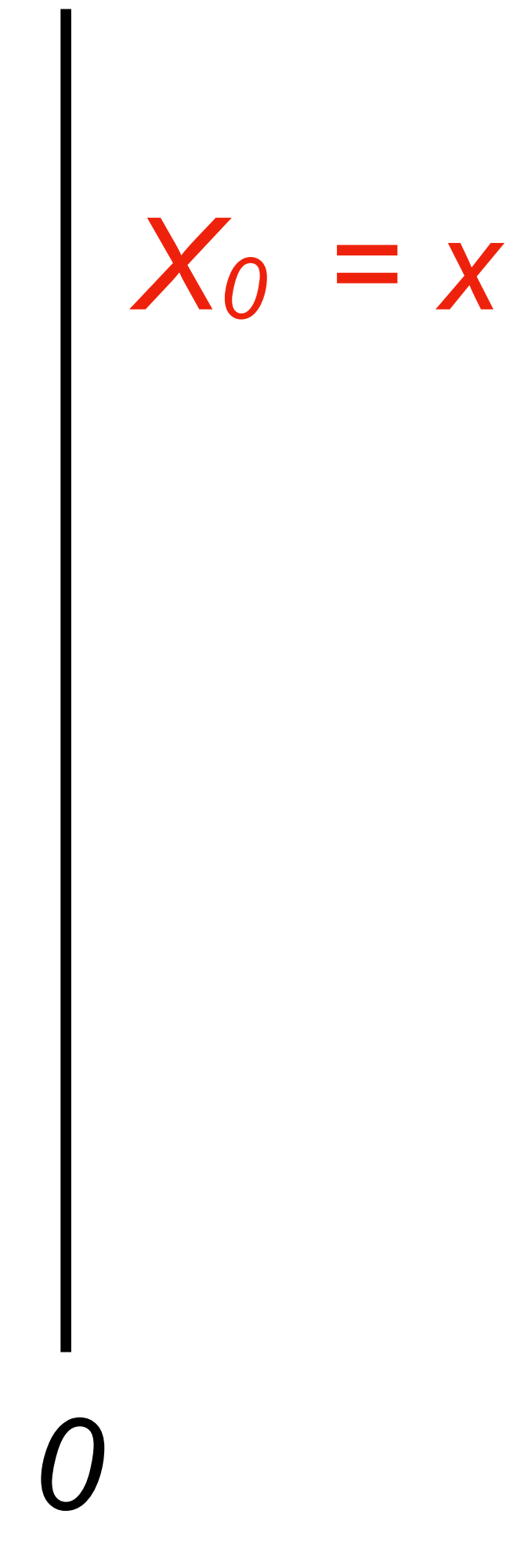


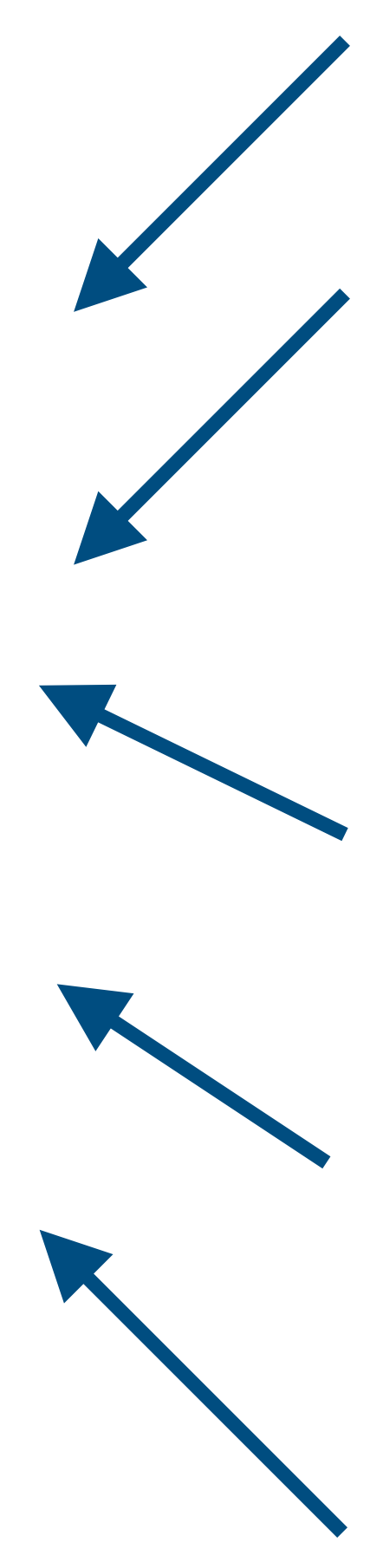
T-2

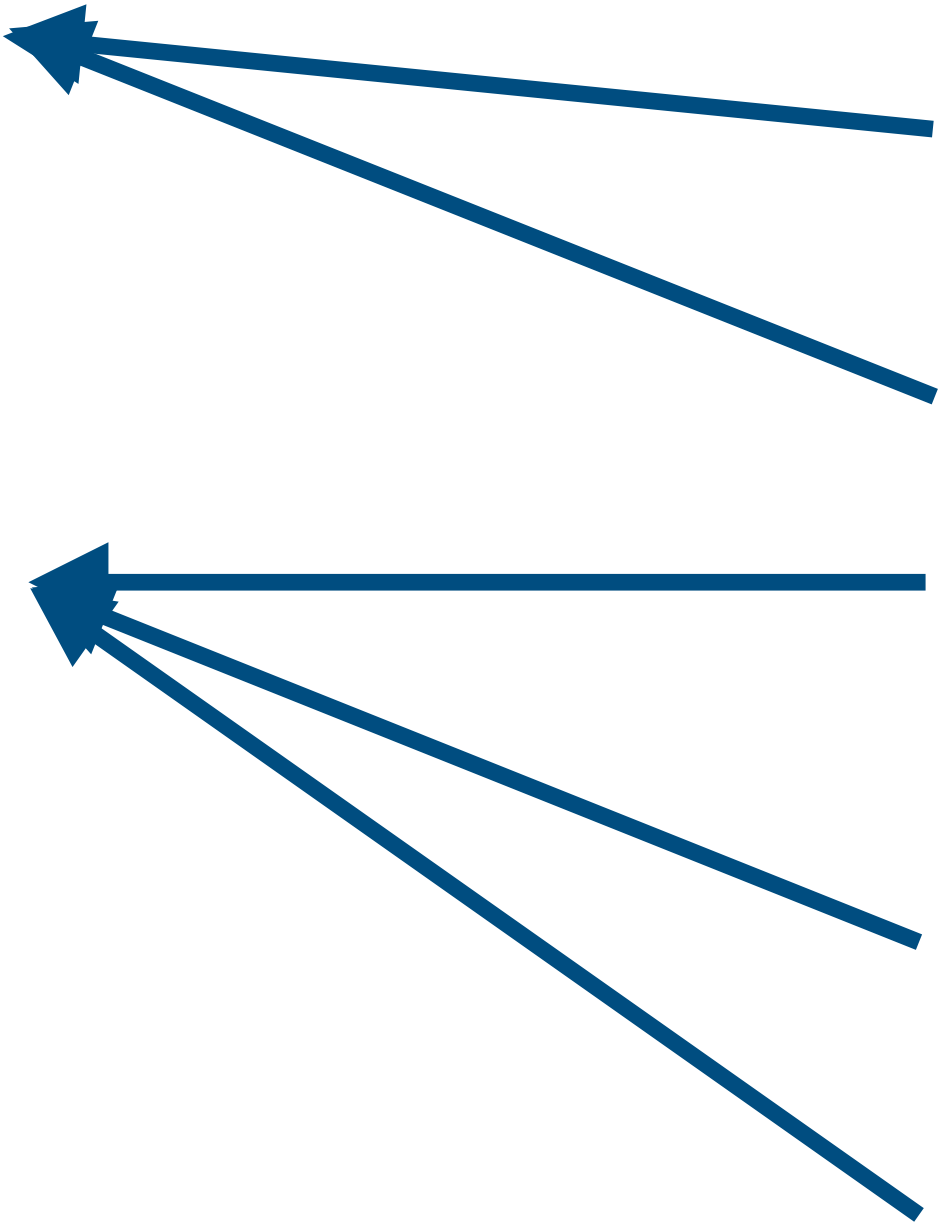


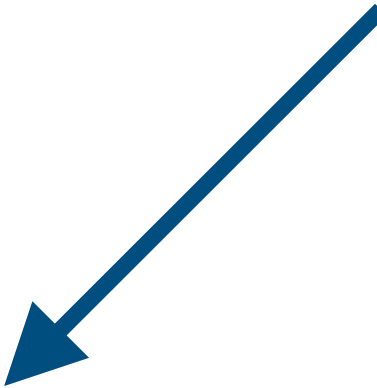
1

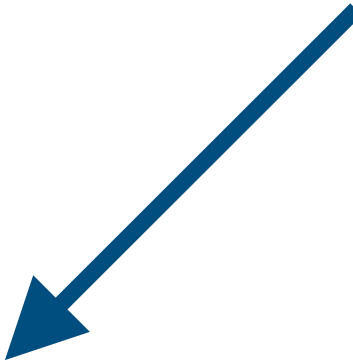

$X_T = z$
T


$X_0 = x$
0



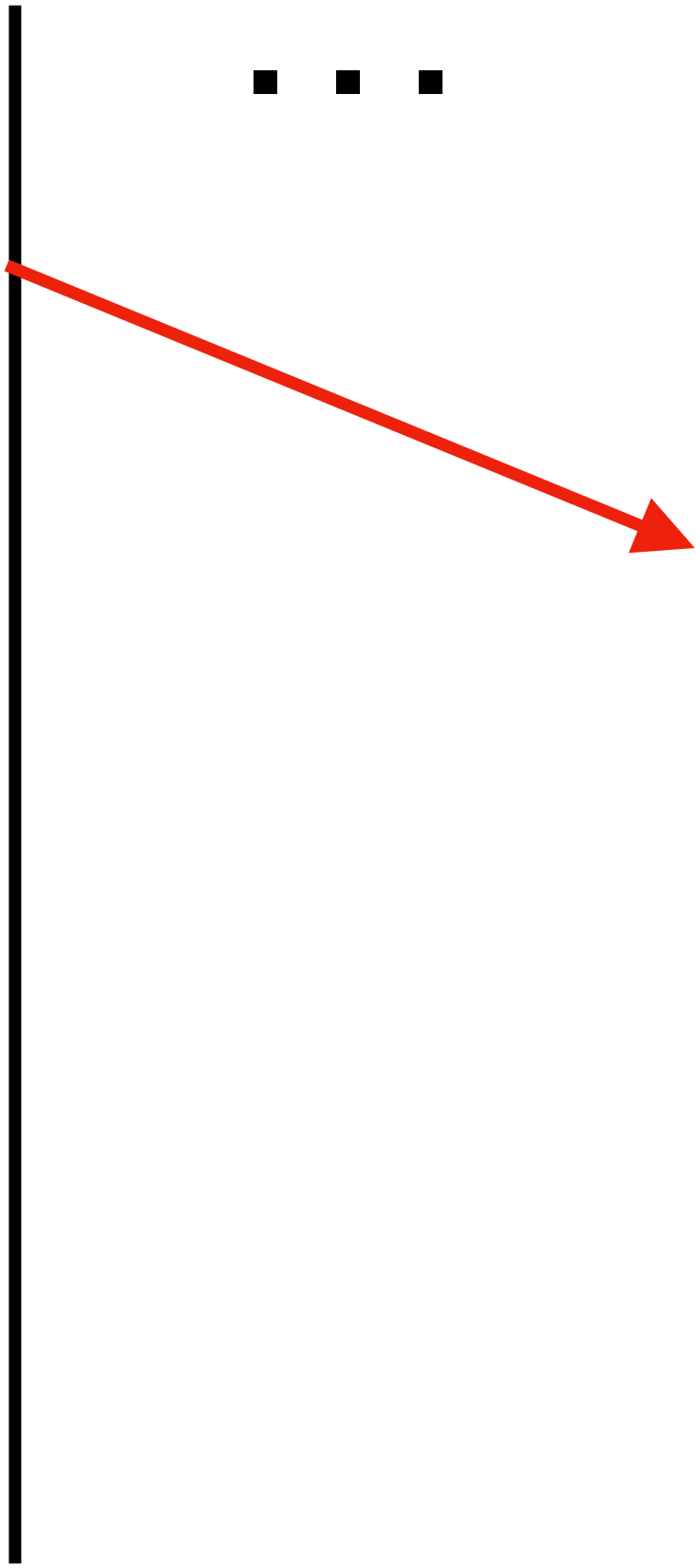






Probability of accepting

$= P(C^T (z) \mid S^T (z \dashrightarrow x))$



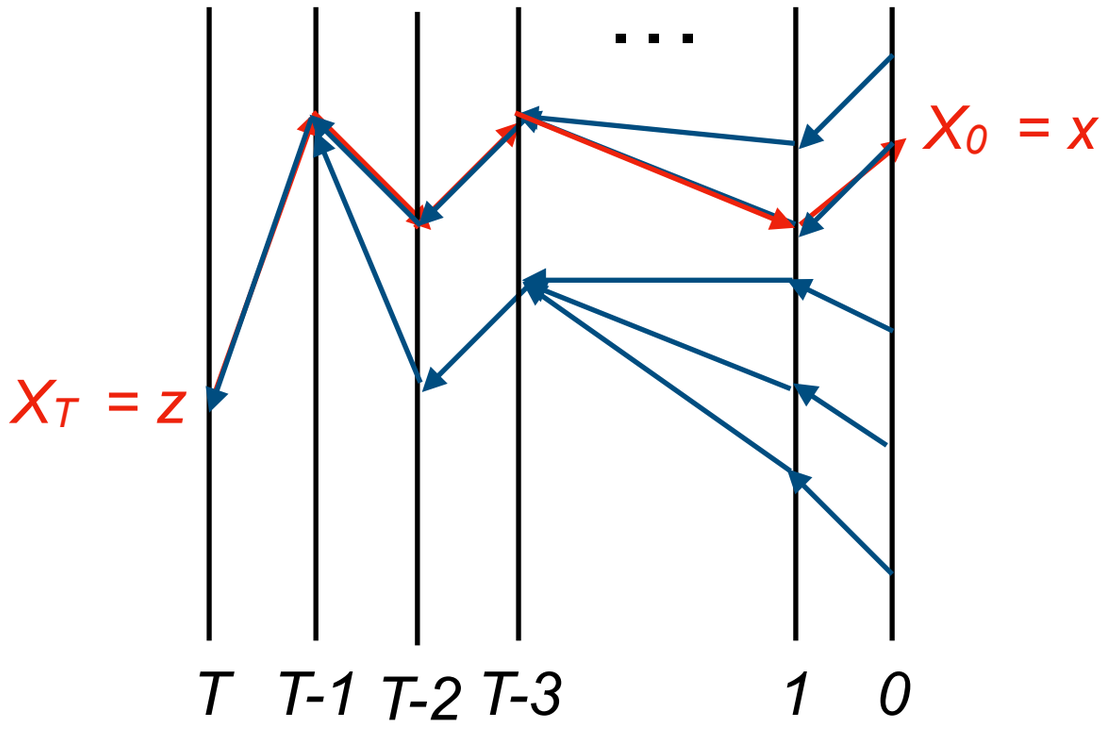
T-3

Theorem 2. : *Fill's algorithm, with* constrained *monotone chains, guarantees that the sampled state is from the stationary PMF* $Q(X)$.

How to do this for general chains?

How perfect sampling? — Fills Algo

Relies on Acceptance Rejection Sampling



Probability of accepting
= P(C^T (z) | S^T (z —> x))

Theorem 2. : *Fill's algorithm, with* constrained *monotone chains, guarantees that the sampled state is from the stationary PMF* $Q(X)$.

How to do this for general chains?

Bounding Chains

M is bounding chain of M' if there exists coupling between M and M' such that

$$X_v^{'t} \in X_v^t, \forall v, \implies X_v^{'t+1} \in \bar{X}_v^{t+1}, \forall v.$$