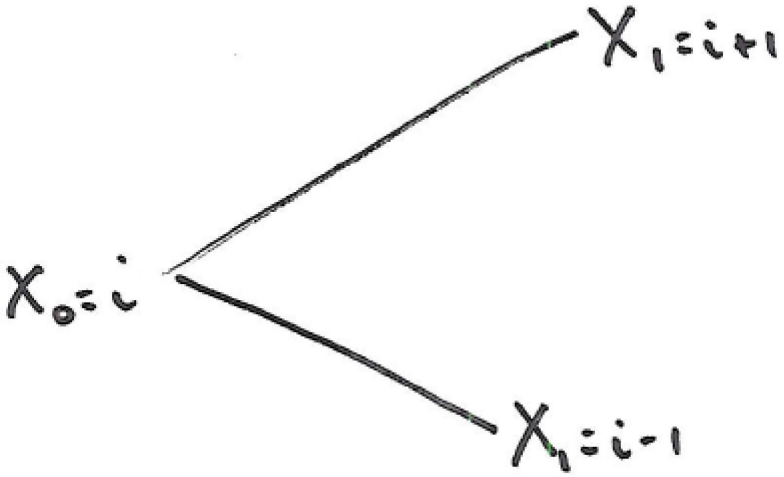
$\text{Prob}(\text{Hit} \cap \text{first} \mid X$



p_{i+1}

p_{i-1}