

Multiplex-Metropolis (MTM)



X_j^*



X_j



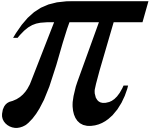




Liu, Liang, and Wong (2000)

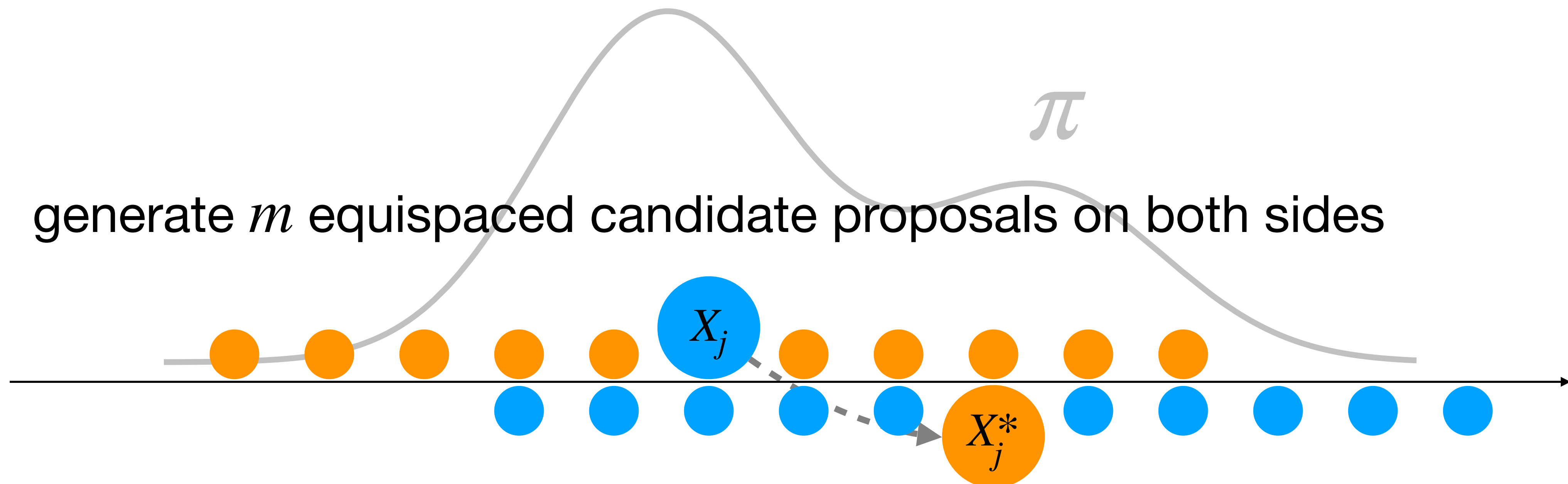
generate *m* equispaced candidate proposals on both sides

pick one with probability proportional density



accept with probability $\min\left(1, \frac{\sum \pi(\text{blue circle})}{\sum \pi(\text{orange circle})}\right)$

Multiple-try Metropolis (MTM)



pick one with probability proportional to density

accept with probability $\min \left(1, \frac{\sum \pi(\text{blue circle})}{\sum \pi(\text{orange circle})} \right)$

1. Introduction

- Variable selection and model-X knockoffs
- Knockoff sampling is difficult

2. Characterizing knockoff distributions

- The characterization theorem
- Connection to Markov chain Monte Carlo (MCMC)

3. Metropolized knockoff sampling (Metro)

- How it works
- Time complexity and graphical structure

4. Good proposals inspired by the MCMC literature

- Covariance-guided proposal
- Multiple-try Metropolis (MTM)

5. **Simulation results**

6. Discussion