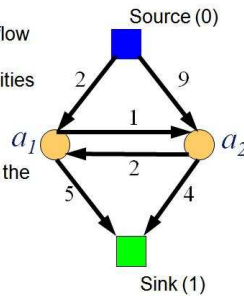


CS 228, Winter 2009

Practice Quiz #5

1. (a) Explain why we cannot simply apply likelihood weighting to Markov networks.
 - (b) Show how likelihood weighting can be applied to chordal Markov networks.
 - (c) Provide a technique by which the more general framework of importance sampling can be applied to Markov networks. Be sure to define both a reasonable proposal distribution and an algorithmic technique for computing the weights.
2. Give closed form equations for each sampling step in the MCMC algorithm for the Student network (over Difficulty, Intelligence, SAT, Grade, and Letter).
3. (a) ;

- Given an energy represented by the directed flow graph to the right
 - In which the numbers represent capacities
 - The source node is blue
 - The sink node is green
- What is the value of the minimum cut (hint use the augmenting path algorithm)



- A 7
- B 8
- C 9
- D 11

- (b) What energy function does the graph above correspond to? What MAP assignment does the minimum cut correspond to?