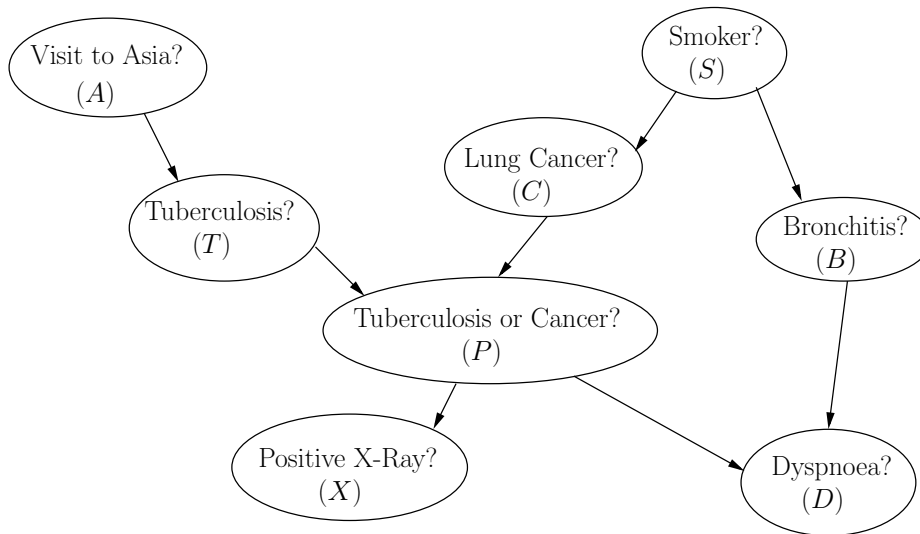


Probabilistic Models: Spring 2014 Asia Network d-Separation Example

Use this network to answer the following independence questions.

- List the Markov blanket of all variables.
- $dsep(P, \{A, T, C, S, B, D\}, X)$
- $dsep(P, \{T, C\}, \{A, S\})$
- $dsep(P, \{C, D\}, B)$
- $dsep(B, S, P)$
- $dsep(\{B, C\}, S, P)$
- $dsep(\{B, C\}, P, \{A, T, X\})$



Test $dsep(\mathbf{X}, \mathbf{Z}, \mathbf{Y})$ by testing if \mathbf{X} and \mathbf{Y} are connected in a new graph.

- Delete outgoing edges from nodes in \mathbf{Z}
- (Recursively) Delete any leaf which does not belong to $\mathbf{X} \cup \mathbf{Y} \cup \mathbf{Z}$