

Recitation 4 Solutions

1. For each statement, name the graphs whose structures imply it.
 - (a) G2
 - (b) none
 - (c) G3, G4
 - (d) none
 - (e) G2, G3
 - (f) G1, G2, G4

2. For each graph, how many independent parameters are required to specify a Bayes net with that structure?
 - (a) G1: 9
 - (b) G2: 11
 - (c) G3: 8
 - (d) G4: 7

3.
 - (a) Yes.
 - (b) No.
 - (c) No.
 - (d) B or D or E , or any combination of them
 - (e) B and F (need both, not just one)
 - (f) B
 - (g) 16
 - (h)
$$P(D|C) = \sum_b \sum_a P(D|b)P(b|a, C)P(a)$$
 - (i) The CPT factors that depend on B are $f_B(A, B, C)$, $f_D(B, D)$, and $f_E(B, E, F)$
The new factor depends on A, C, D, E, F .
 - (j) A, C, D, E, F
 - (k) $P(A = a)$