Practicing with the d-separation algorithm will eventually let you determine independence relations more intuitively. For example, you can tell at a glance that two variables with no common ancestors are marginally independent, but that they become dependent when given their common child node.

Here are some examples of questions we can answer about the Bayes net below, using d-separation:

1. Are A and B conditionally independent, given D and F?

(Same as "P(A|BDF) =? P(A|DF)" or "P(B|ADF) =? P(B|DF)")

2. Are A and B marginally independent? (Same as "P(A|B) =? P(A)" or "P(B|A) =? P(B)")

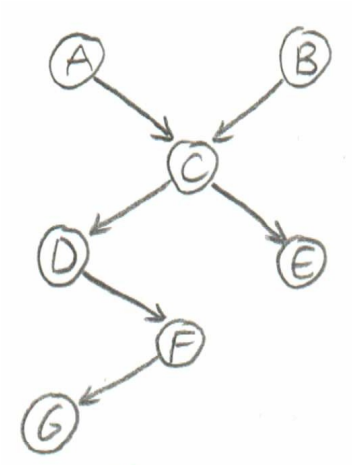
3. Are A and B conditionally independent, given C?

4. Are D and E conditionally independent, given C?

5. Are D and E marginally independent?

6. Are D and E conditionally independent, given A and B?

7. P(D|BCE) =? P(D|C)



Solutions are on the following pages.