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| 1. Given the following Bayesian Nets. Write the corresponding joint probabilities. | |
|  | P(A).P(B).P(C) |
|  | P(C).P(B/A).P(A) |
|  | P(C/B).P(B/A).P(A) |
|  | P(B/A,C).P(C). P(A) |
|  | P(D/B).P(B/A,C).P(A).P(C) |
|  | P(E/B).P(D/B).P(B/A,C).P(A).P(C) |
| 1. Considering the following Bayesian Network.  |  |  |  |  | | --- | --- | --- | --- | |  | | **B** | | | **+b** | **.-b** | | A | +a | 0.8 | .0.2 | | -a | 0.1 | .0.9 |  |  |  | | --- | --- | | **A** | | | **+a** | **-a** | | 0.2 | 0..8 |   **Note:** the signs ‘+’ and ‘-‘ stand for True and False respectively.   1. What are the names of these tables?   Conditional probability distribution tables   1. Complete the missing information in each table   See table above | |
| 1. Compute 2. P(-a) = 0.8 3. P(+a,+b) = P(+b|+a)P(+a) = 0.8\*0.2=0.16 4. P(-a, +b) = P(+b|-a)P(-a) = 0.1\*0.8 = 0.08 5. P(+b) = SumA={+a,-a} P(A,+b) = P(+a, +b) + P(-a, +b) = 0.16+0.01 = 0.17 6. P(B,- a) = { P(+b, -a) , P(-b, -a) } = {0.08, 0.72}   P(+b, -a) = P(+b|-a)P(-a) = 0.8x0.1 = 0.08.  P(-b, -a) = P(-b|-a)P(-a) = 0.9x0.8 = 0.72.   1. P(B|-a) = {P(+b, -a)/P(-a), P(+b, -a)/P(-a)}= {0.08/0.8, 0.72/0.8} | |