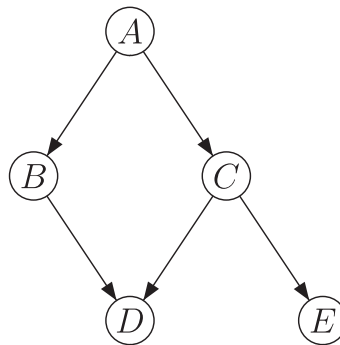


### Exercise Sheet 8

#### Exercise 25      Clique Tree Propagation

Recall the example network from the lecture:



$P(e_1   c_1) = 0.8$	$P(e_1   c_2) = 0.6$
$P(d_1   b_1, c_1) = 0.8$	$P(d_1   b_1, c_2) = 0.8$
$P(d_1   b_2, c_1) = 0.8$	$P(d_1   b_2, c_2) = 0.05$
$P(b_1   a_1) = 0.8$	$P(b_1   a_2) = 0.2$
$P(c_1   a_1) = 0.2$	$P(c_1   a_2) = 0.05$
$P(a_1) = 0.2$	

- Determine the a-priori distribution for all five variables!
- It becomes evident that the patient has severe headache ( $E = e_1$ ). Propagate this evidence across the network with the clique tree propagation algorithm presented in the lecture, i.e., compute all five a-posteriori distributions!
- In addition to b), we now learn that the patient has no increased serum calcium ( $B = b_2$ ). Again, propagate this additional evidence!

You may use the HUGIN tool to check your calculations, before using them to address the next assignment.