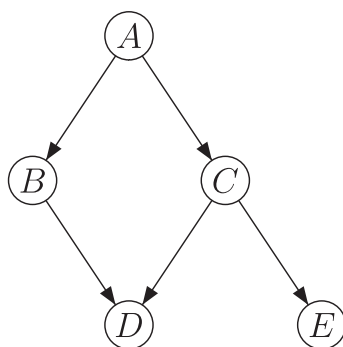


Exercise Sheet 8

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.