CSCE 582 Fall 2002
PROGRAMMING ASSIGNMENT
Assigned Monday 02/9/23, due Monday 02/11/25

In this assignment, you will implement the variable elimination method (also called bucket elimination) for computation of marginal posterior probabilities in a Bayesian network.

You may use whatever programming language you like, as long as you can easily demonstrate your work. My preference is that you use Java or ML.

The main criteria for evaluating your work are: correctness, readability, and conciseness.

Your program should take as input a Bayesian net described using Hugin's net language, some evidence in the form of one of more (hard) findings, and the specification of a variable for which the marginal posterior probability is desired. Your program should output the marginal posterior probability for the variable specified in the input.

As an aid to testing your program, use the visit to Asia example. The Hugin .net file is copied on the course web site for your convenience. The process of bucket elimination for a particular query (as described by Bezuglov and Goradia in their presentation) is also available on the course web site. Your program should be reasonably general, and it will be tested on at least one other network. In particular, your program should work for a network of at least 25 nodes. We therefore recommend that you test your program with other networks.

See Section 1.4.7 of your text for background and the web site of the course for pointers to a relevant paper by Rina Dechter.