

# When in Doubt ... Be Indecisive

Linda C. van der Gaag

Head of the Decision-support Systems Research Group  
Department of Information and Computing Sciences  
Faculty of Sciences  
Utrecht University, The Netherlands

## Abstract:

For a presented case, a Bayesian network classifier in essence computes a posterior probability distribution over its class variable. Based upon this distribution, the classifier's classification function returns a single, determinate class value and thereby hides the uncertainty involved. To provide reliable decision support, however, the classifier should be able to convey indecisiveness if the posterior distribution computed for the case does not clearly favour one class value over another. In this talk we present an approach for this purpose, and introduce new measures to capture the performance and practicability of such classifiers.