

## Chapter 7 Exercises

**Exercise 1:** Open the “7.2 Train Strike” model (on <http://bayesianrisk.com/models.html>). Enter the observations T= false in both parts of the model and run the model. Do the same for T=true, N=true and N=false. What can you conclude?

**Exercise 2:** In AgenaRisk create a BN with two Boolean nodes A and B. Make B the child of A and define the NPTs respectively as:

False	0.2
True	0.8

A	False	True
False	0.9	0.3
True	0.1	0.7

By running the resulting model with appropriate observations, construct an ‘equivalent’ version of the model in which A is the child of B.

**Exercise 3:** Use instantiations of the cause-consequence idiom and the measurement idiom to model the following uncertain scenario “Using good designers and good tools increases the quality of a product as is made clear by customer satisfaction surveys”.

**Exercise 4:** Explain why the BN model of Figure 7.35 has 33 NPT entries in total.

**Exercise 5:** A, B and C are three rare medical conditions. A and B both have an incidence of about one in 1,000 people. In a large sample of patient data (about 600,000) it is discovered that every patient having condition A or B also has condition C and there are no instances of a patient having condition C without either A or B. Using this information construct an appropriate BN with nodes A, B, C. Are you confident that the BN is accurate? (Hint read this article: [www.eecs.qmul.ac.uk/~norman/papers/ml\\_simple\\_example.pdf](http://www.eecs.qmul.ac.uk/~norman/papers/ml_simple_example.pdf))