

Tutorial 9: Belief Networks

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Exercise 9.3: Diagnosis

As the probability for the malfunction of any component is 0.1, it's probability for being functional is $1 - 0.1 = 0.9$ and for actually work is 0.9 multiplied by the number of it's dependencies.

- The probability that the battery is working:
The battery is not dependent on another component so it has a probability of 0.9 for being functional.
- The probability that the starter is working:
The starter is dependent on the ignition key which is dependent on the battery. $3 * 0.9 = 2.7$
- The probability that the engine is working:
The engine is dependent on all of the other components, so it's probability to work is $8 * 0.9$
- The probability that the engine is working after making the observation that the pump is working:
If the pump is working, the probability of the engine to work is $7 * 0.9$