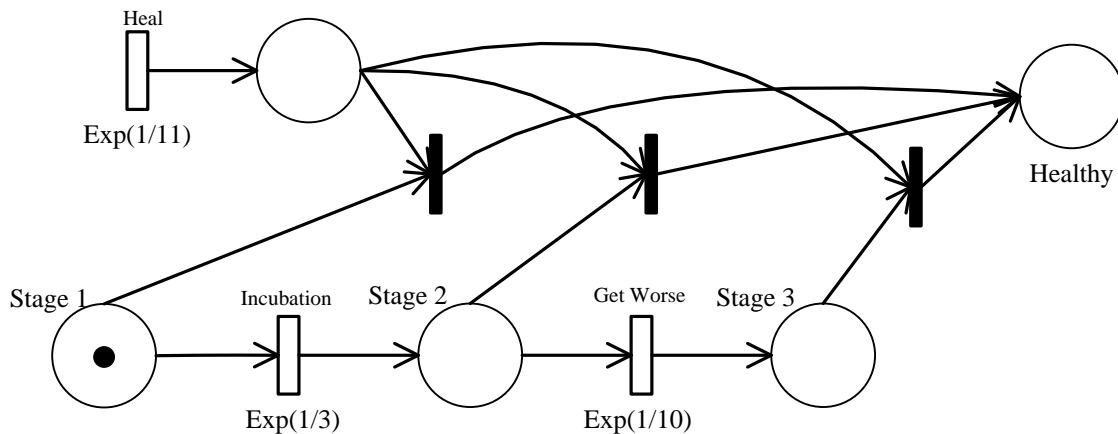


Assignment 3 “Diagnosis”: GSPNs & CTMCs



System Specification

A development of the illness is described by the above GSPN.

We assume daily temperature measurements and the following probabilities for fever: in stage 1

$P(\text{fever}) = 0.1$, in stage 2 $P(\text{fever}) = 0.5$, in stage 3 $P(\text{fever}) = 0.8$.

Tasks and Questions

Construct the state space and ERG of the above model

Construct the CTMC representing the GSPNs behaviour

Use your program to answer the following questions:

- What is the probability that the place *Healthy* is empty after 12 days for different discretization time steps (e.g. 2, 1, 0.5, 0.25, 0.1)?
- What is the throughput of transition *Get Worse* on the 9th day for different discretization time steps (e.g. 2, 1, 0.5, 0.25, 0.1)?
- What is the throughput of transition *Heal* after 12 days for different discretization time steps (e.g. 2, 1, 0.5, 0.25, 0.1)?