

1 Grid Graph Analysis

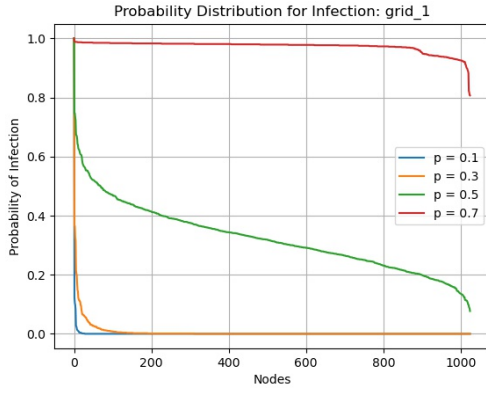
1.1 G_{gr}^1 and G_{gr}^4 Infected Nodes and Probability Distribution

For the two grid graphs, the infected node count is shown below for each probability level.

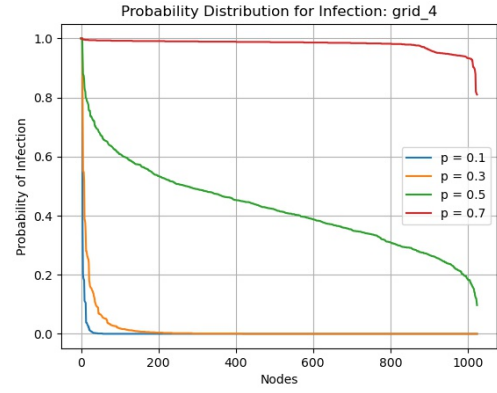
Table 1: Count of Infected Nodes

p	G_{gr}^1	G_{gr}^4
0.1	28	56
0.3	310	417
0.5	1024	1024
0.7	1024	1024

G_{gr}^4 , the grid graph with four infected source nodes, has clearly higher infection rates in the 0.1 and 0.3 probability levels. At 0.5 and above, however, both graphs have a significant probability of infection for all 1024 nodes. The following figures show the probability distributions for both graphs.



(a) Probability Distributions G_{gr}^1



(b) Probability Distributions G_{gr}^4

The probability distributions for G_{gr}^1 and G_{gr}^4 seem to follow the same pattern, but G_{gr}^4 has a slightly higher absolute probability of infection for the same number of nodes. This makes sense as the graphs are of the same general structure, so they scale similarly.

2 G_{gr}^1 and G_{gr}^4 Days to Infection Distribution



(a) Day Infected G_{gr}^1



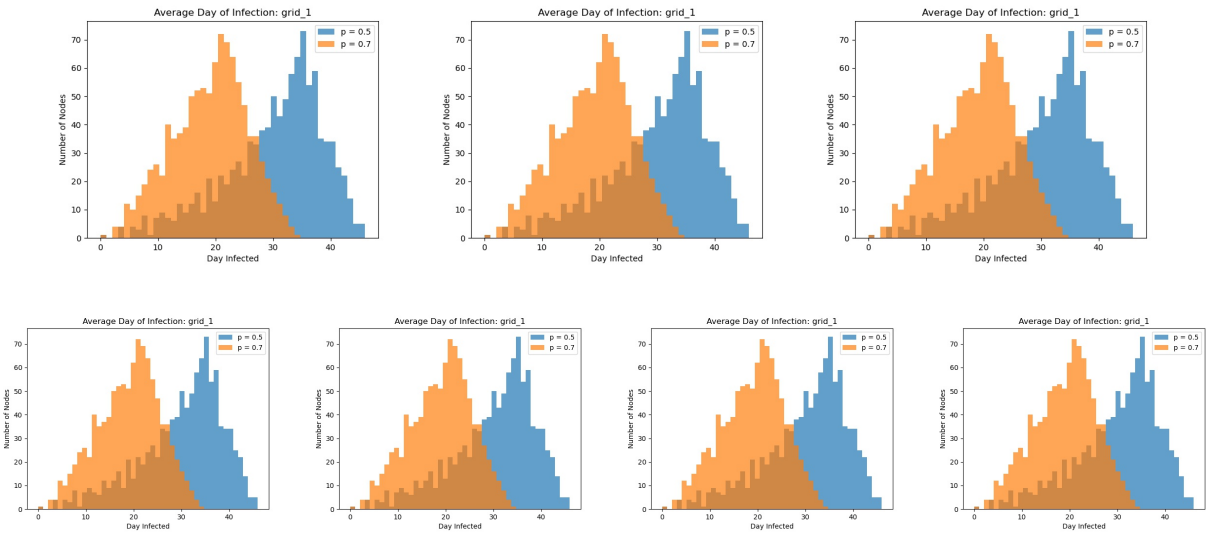
(b) Day Infected G_{gr}^4



(c) Day Infected G_{gr}^1



(d) Day Infected G_{gr}^4



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