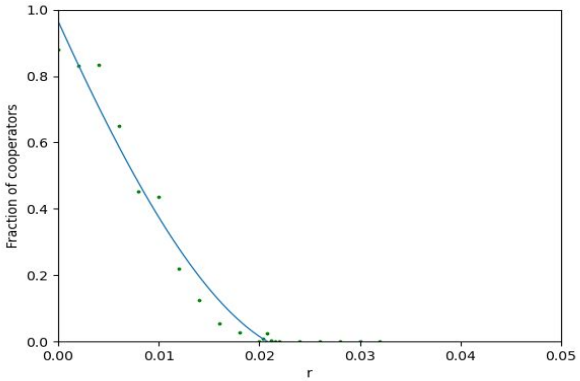
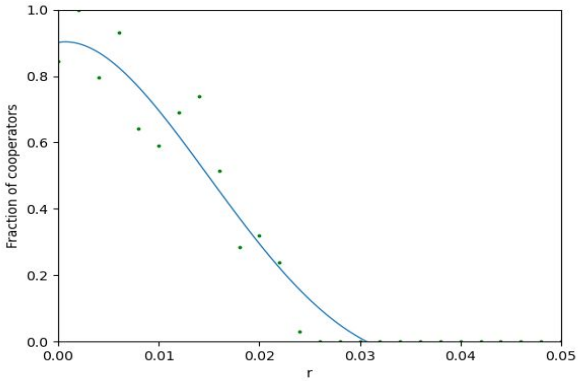
Models

1. Imitation-based
2. Bayesian
3. Reputation + fr-Threshold
4. fc-Threshold



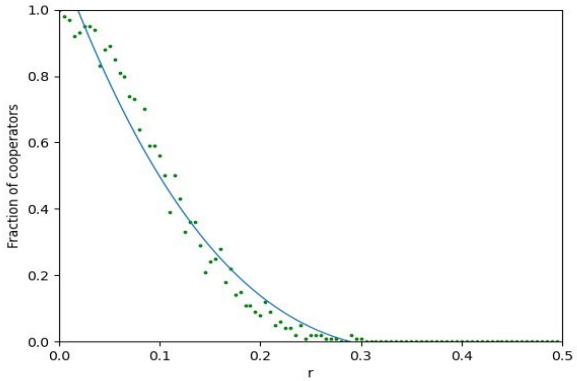
Lattice

0.02



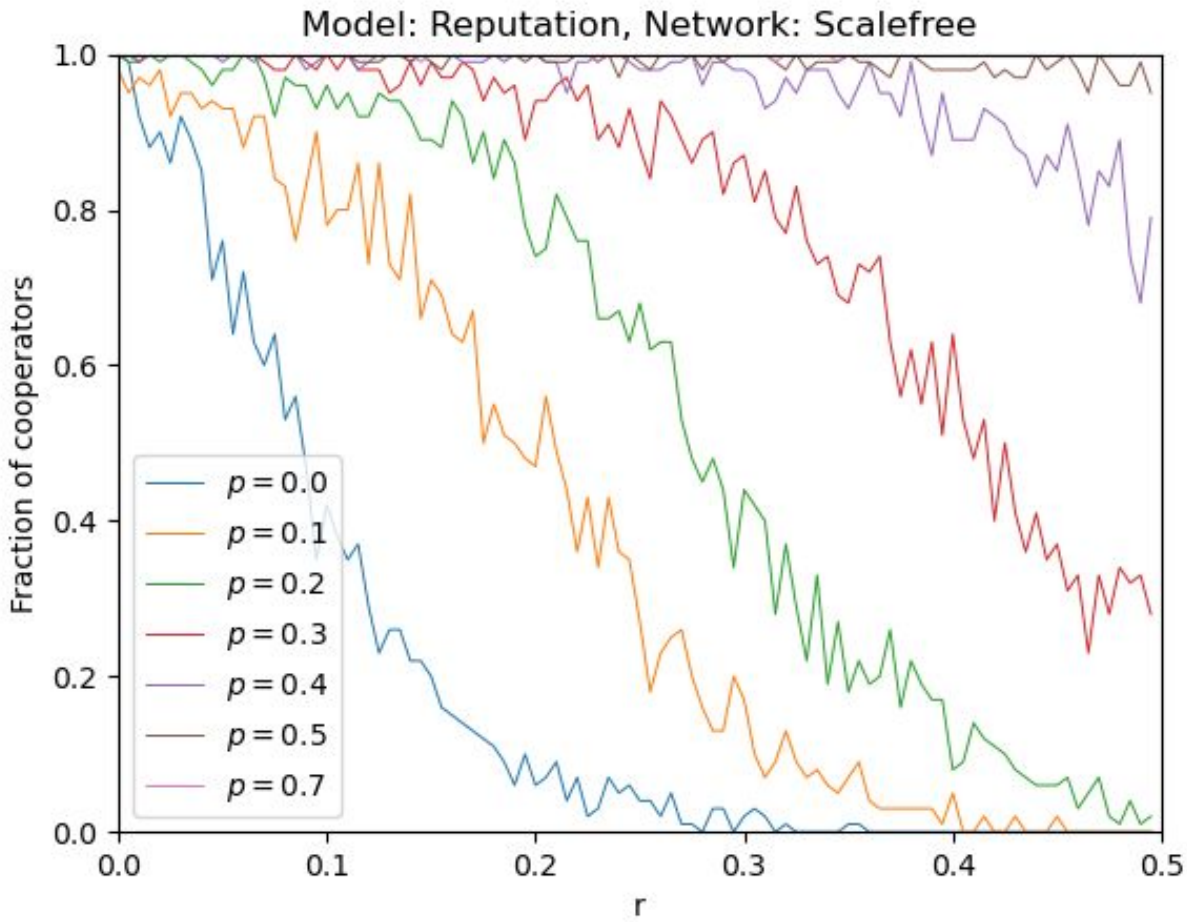
Smallworld

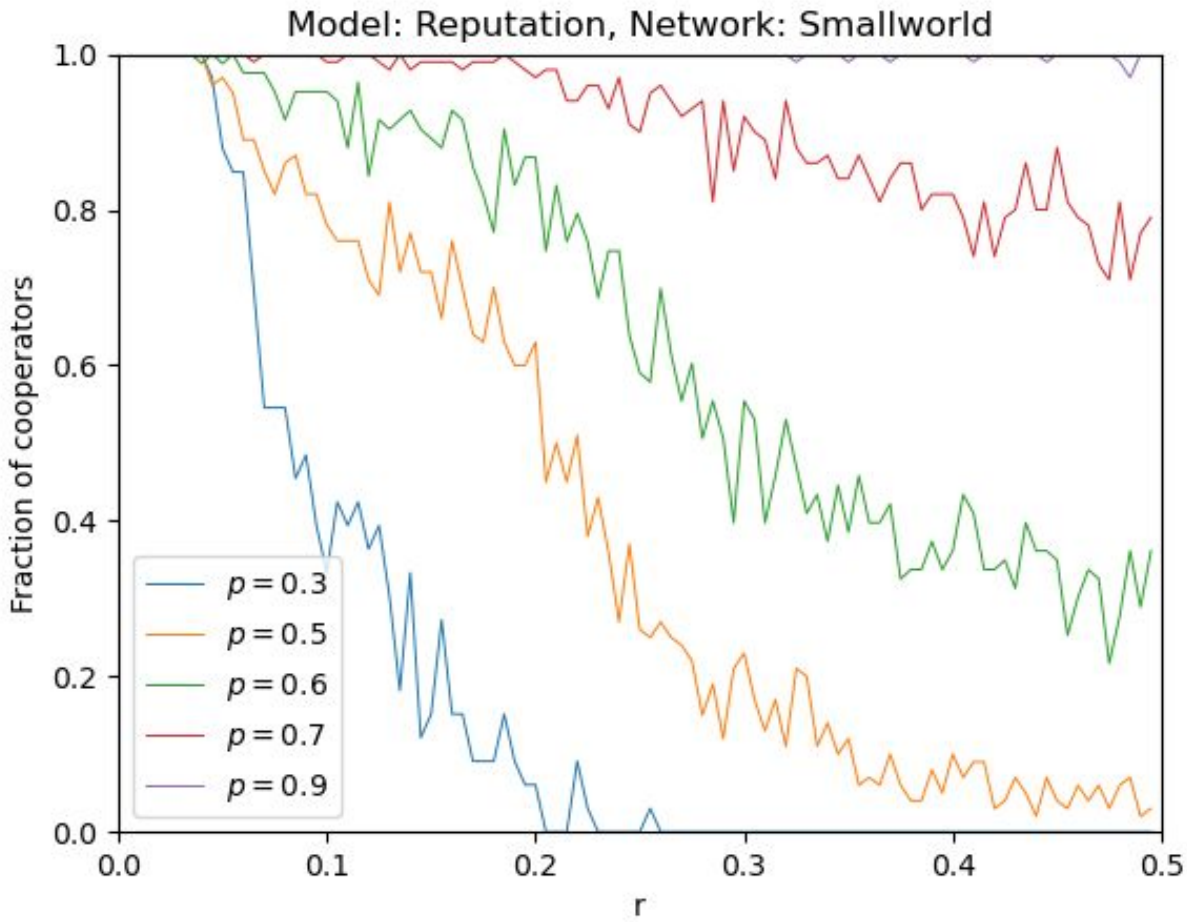
0.03

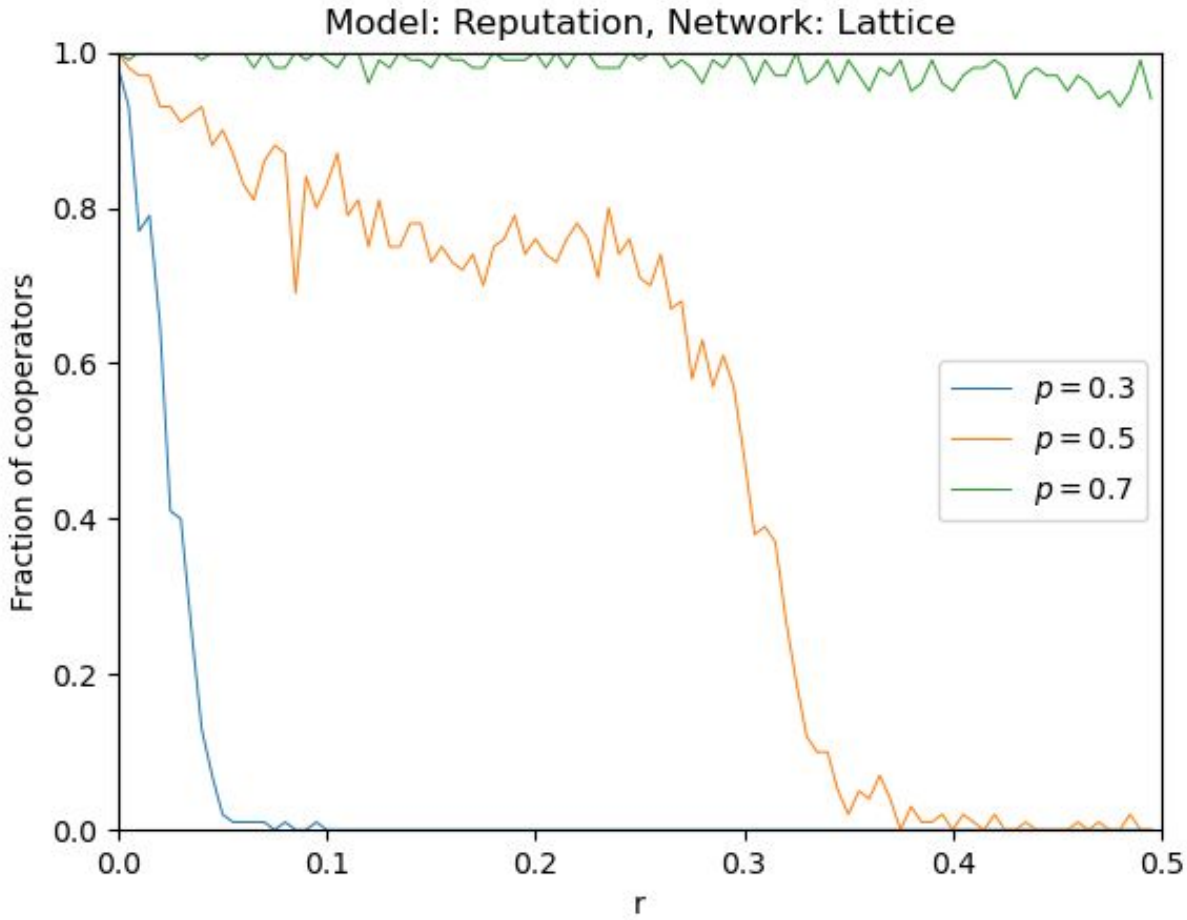


Scalefree

0.3

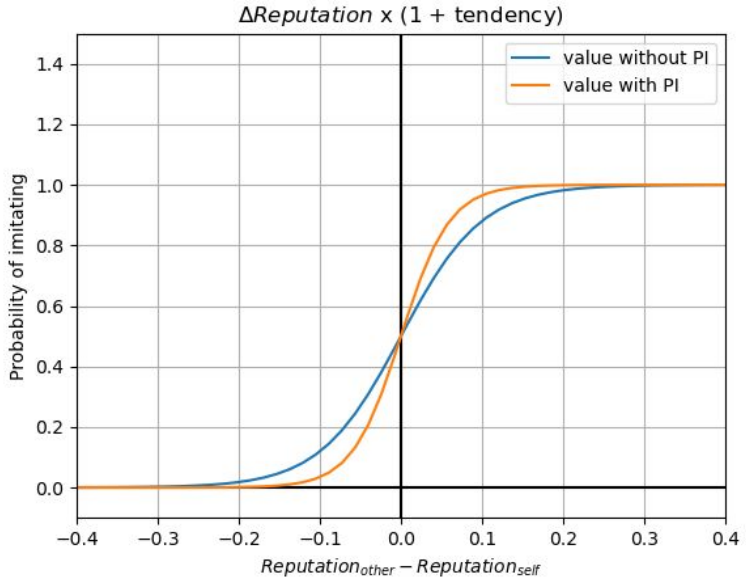

Model: Reputation, Network: Scalefree
Fraction of cooperators
r
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.1
0.2
0.3
0.4
0.5
$p = 0.0$
$p = 0.1$
$p = 0.2$
$p = 0.3$
$p = 0.4$
$p = 0.5$
$p = 0.7$

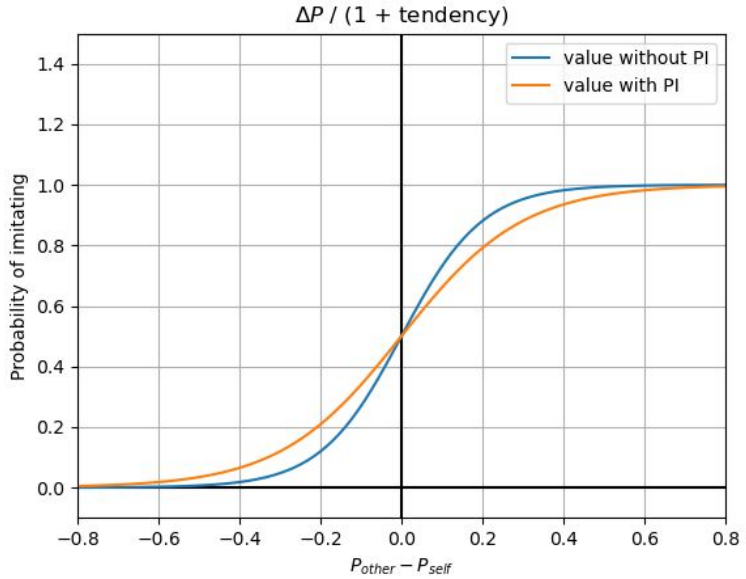

Model: Reputation, Network: Smallworld
Fraction of cooperators
r
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.1
0.2
0.3
0.4
0.5
$p = 0.3$
$p = 0.5$
$p = 0.6$
$p = 0.7$
$p = 0.9$

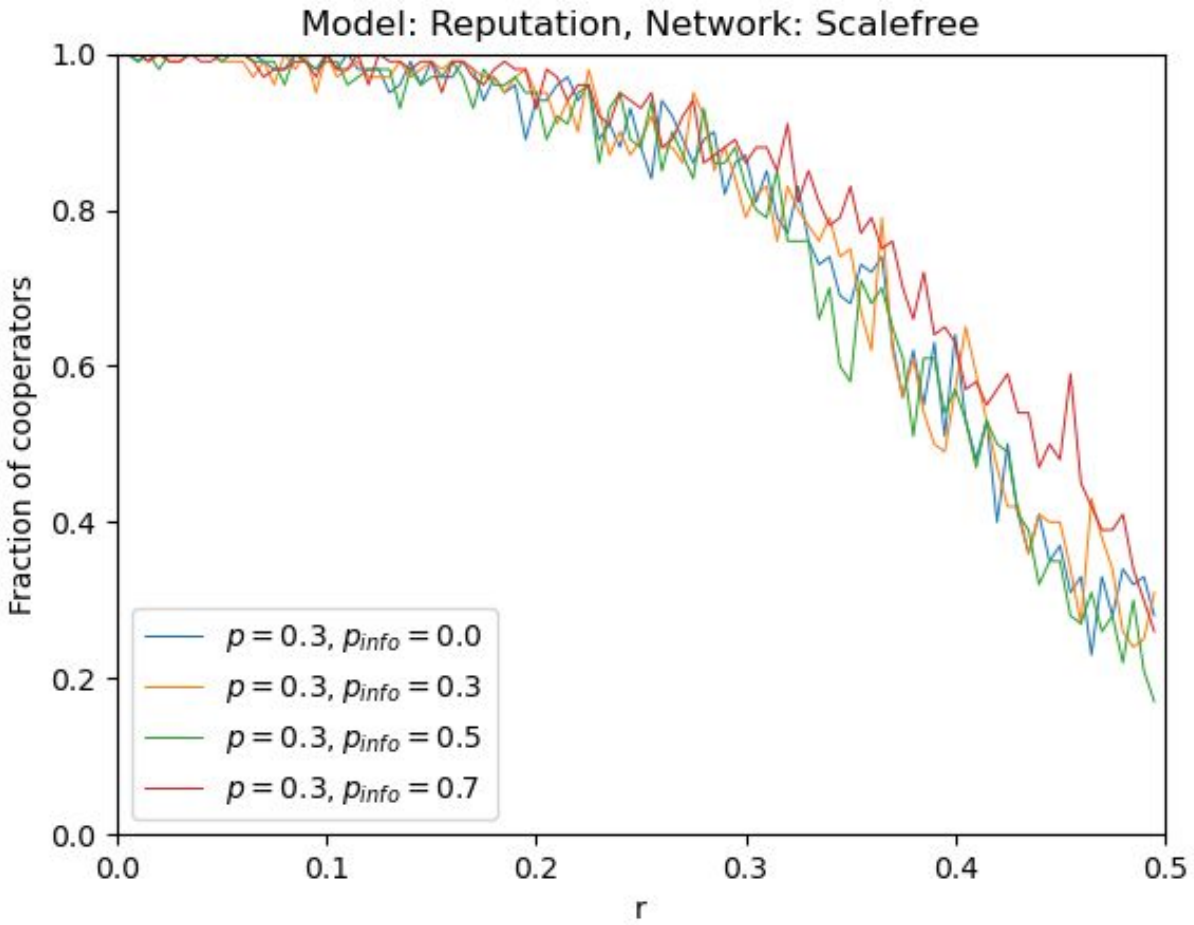

Model: Reputation, Network: Lattice
Fraction of cooperators
r
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.1
0.2
0.3
0.4
0.5
$p = 0.3$
$p = 0.5$
$p = 0.7$

Reputation

Two new parameters called p_{info} (representing the degree of dissemination of 1 unit of public information) and *tendency* (the tendency of an individual to use this information) is introduced. Assumption - knowledge of public information collectively benefits the agents i.e. promotes cooperation.

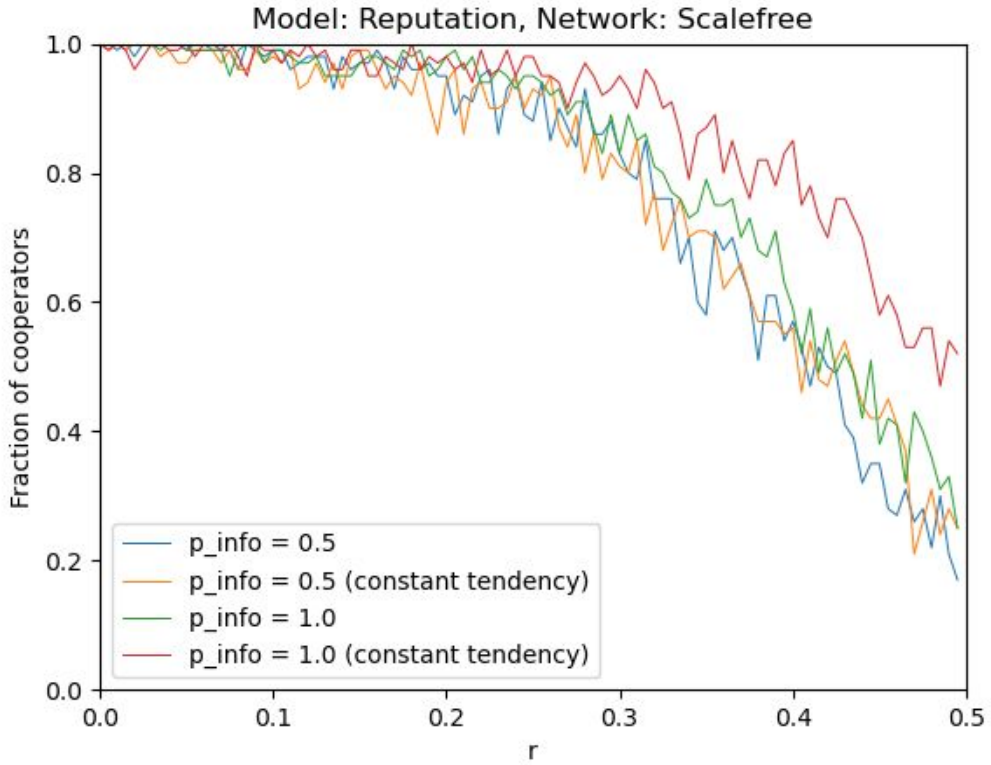





Model: Reputation, Network: Scalefree
Fraction of cooperators
r
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.1
0.2
0.3
0.4
0.5
$p = 0.3, p_{info} = 0.0$
$p = 0.3, p_{info} = 0.3$
$p = 0.3, p_{info} = 0.5$
$p = 0.3, p_{info} = 0.7$

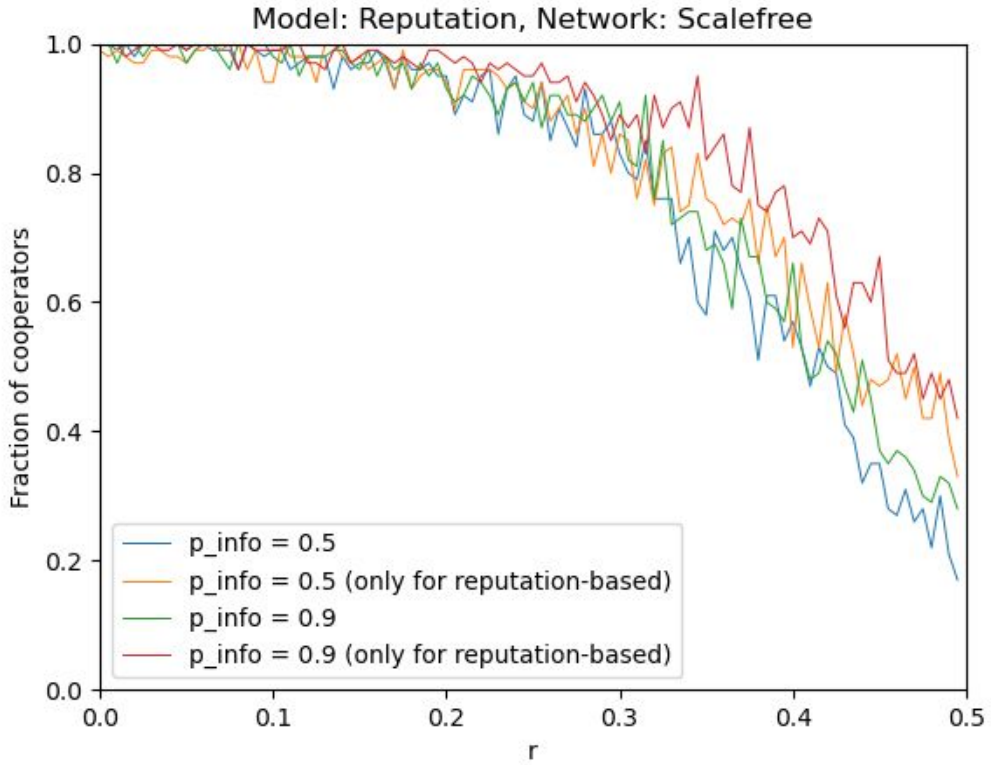
Reputation - Public Information

Set tendency to be a constant (= 0.5)



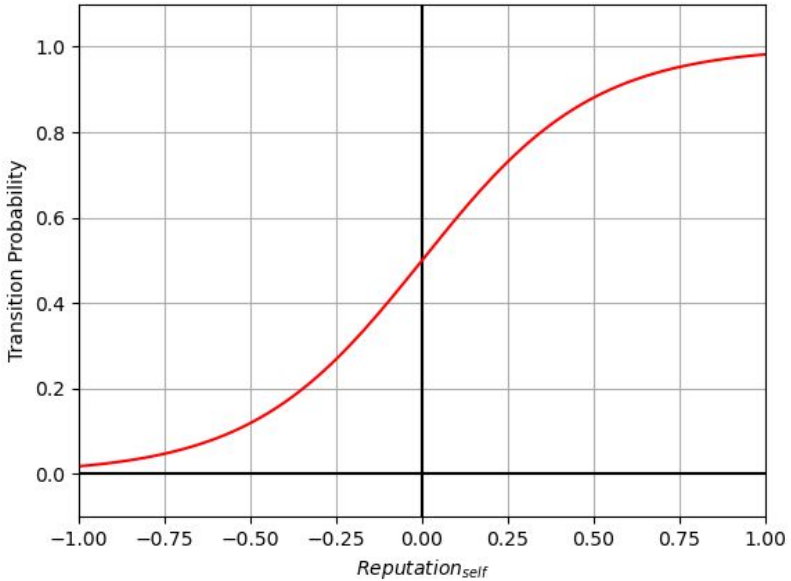
Reputation - Public Information

Access to public information is given only to agents choosing reputation-based imitation

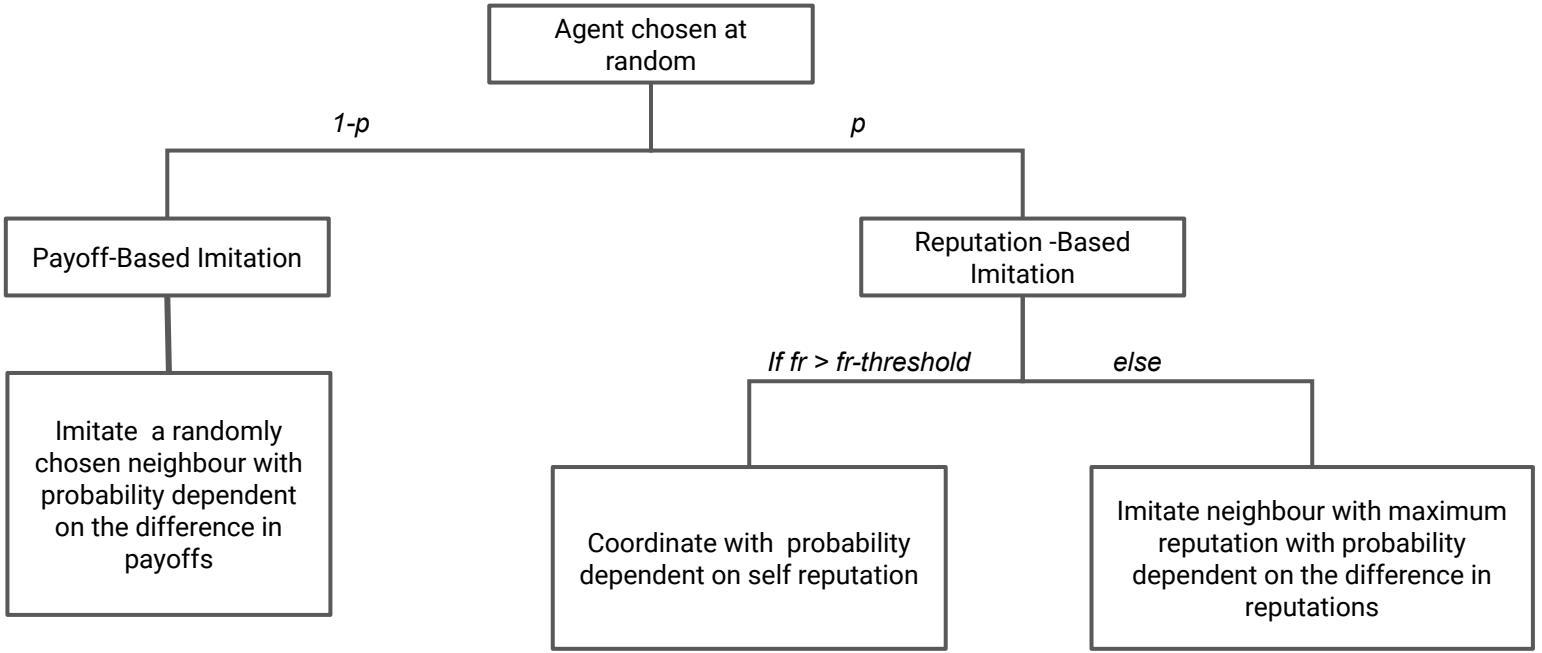


Reputation : fr-Threshold

The public information is the fraction of agents in the population who have reputation >0.9. If this fraction (fr) is greater than the fr-threshold of the agent, then it chooses to cooperate with a certain transition probability (given below). All agents have access to the information.



Reputation : fr-Threshold



Reputation : fr-Threshold