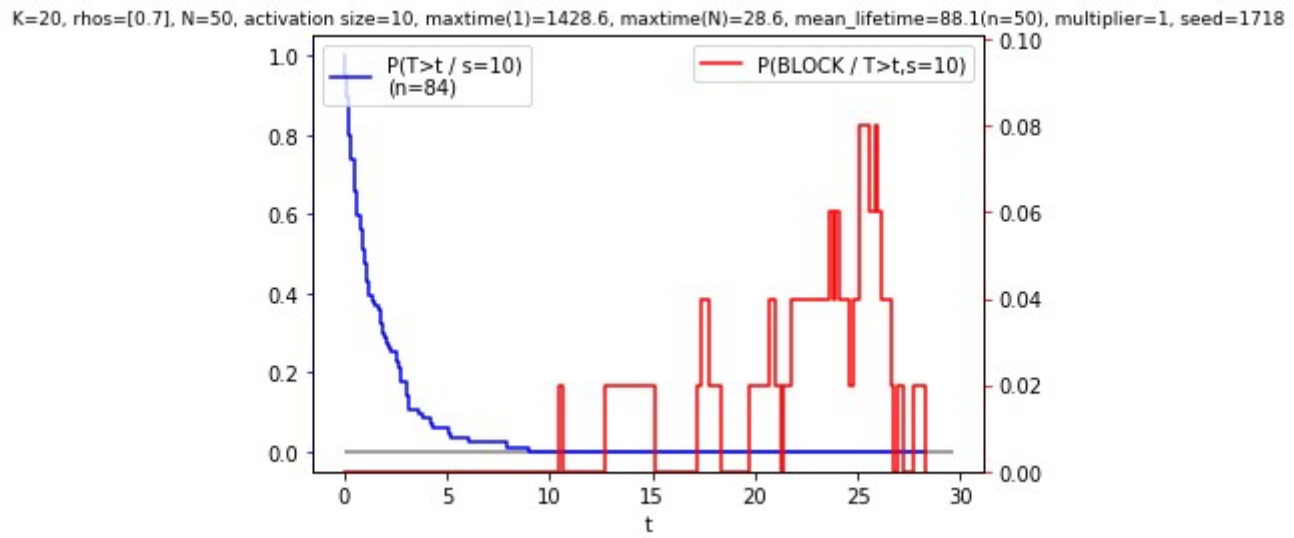
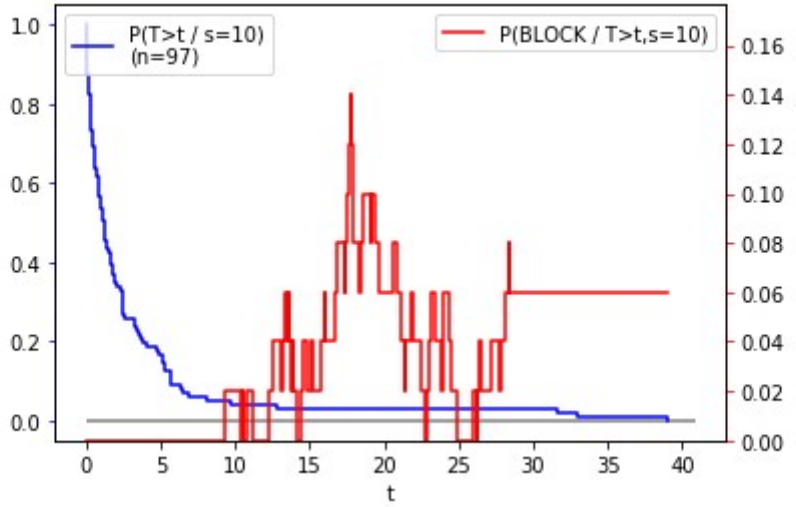
```
Python 3.6.4 |Anaconda custom (64-bit)| (default, Jan 16 2018, 10:22:32) [MSC v.1900 64 bit (AMD64)]
Type "copyright", "credits" or "license" for more information.

IPython 6.2.1 -- An enhanced Interactive Python.

Restarting kernel...
```

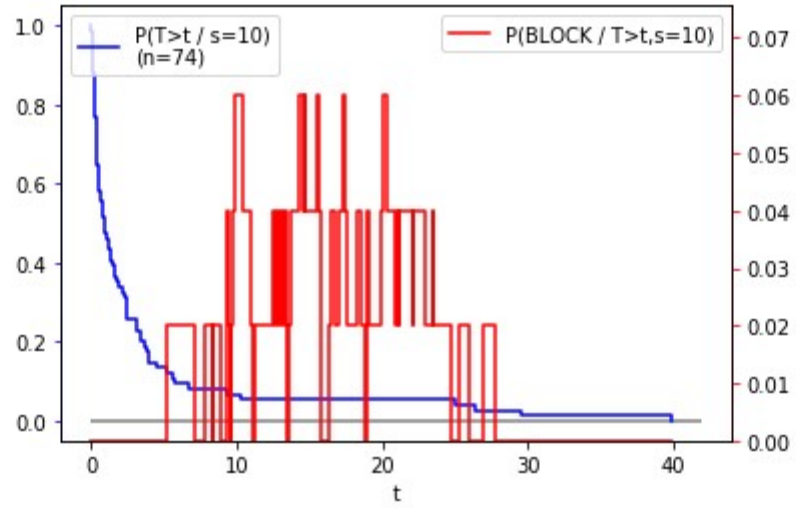
```
In [1]: runfile('E:/Daniel/Projects/PhD-RL-Toulouse/projects/Python/test/test_QB.py', wdir='E:/Daniel/Projects/PhD-RL-Toulouse/projects/Python/test')
Directory:
E:\Daniel\Projects\PhD-RL-Toulouse\projects
has been prepended to the module search path.
Log file '../../RL-002-QueueBlocking/logs/test_fv_implementation_20210427_011330.log' has been open for output.
Started at: 2021-04-27 01:13:30
C:\ProgramData\Anaconda\Anaconda3\lib\site-packages\matplotlib\pyplot.py:528: RuntimeWarning: More than 20 figures have been opened. Figures created through
the pyplot interface (`matplotlib.pyplot.figure`) are retained until explicitly closed and may consume too much memory. (To control this warning, see the
rcParam `figure.max_open_warning`).
  max_open_warning, RuntimeWarning)
C:\ProgramData\Anaconda\Anaconda3\lib\site-packages\pandas\core\groupby.py:4291: FutureWarning: using a dict with renaming is deprecated and will be removed in
a future version
  return super(DataFrameGroupBy, self).aggregate(arg, *args, **kwargs)
Ended at: 2021-04-27 01:56:56
Execution time: 43.4 min, 0.7 hours
```



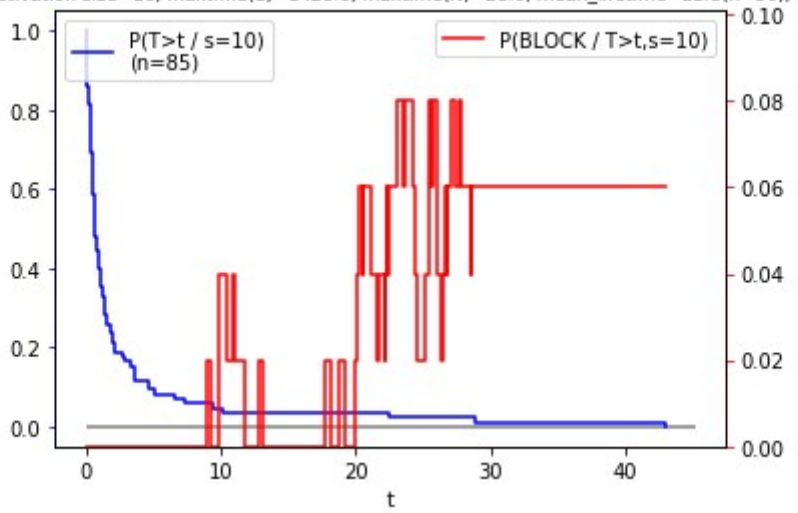
K=20, rhos=[0.7], N=50, activation size=10, maxtime(1)=1428.6, maxtime(N)=28.6, mean_lifetime=97.6(n=50), multiplier=1, seed=1719



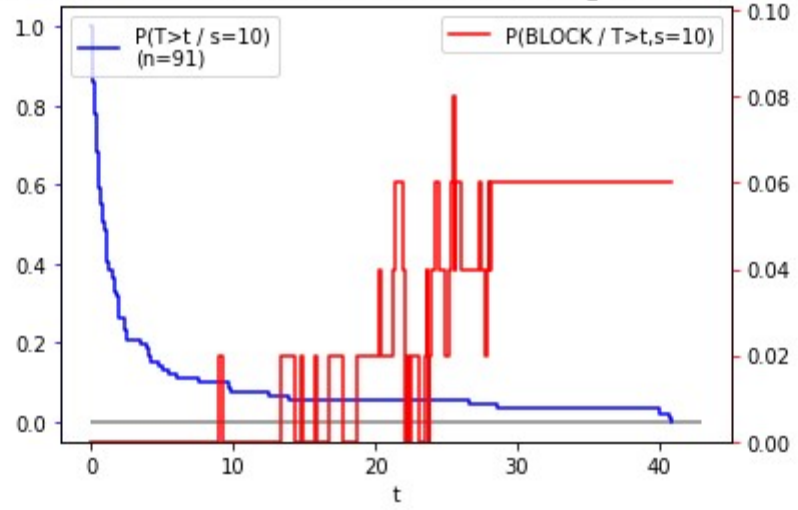
K=20, rhos=[0.7], N=50, activation size=10, maxtime(1)=1428.6, maxtime(N)=28.6, mean_lifetime=102.2(n=50), multiplier=1, seed=1720



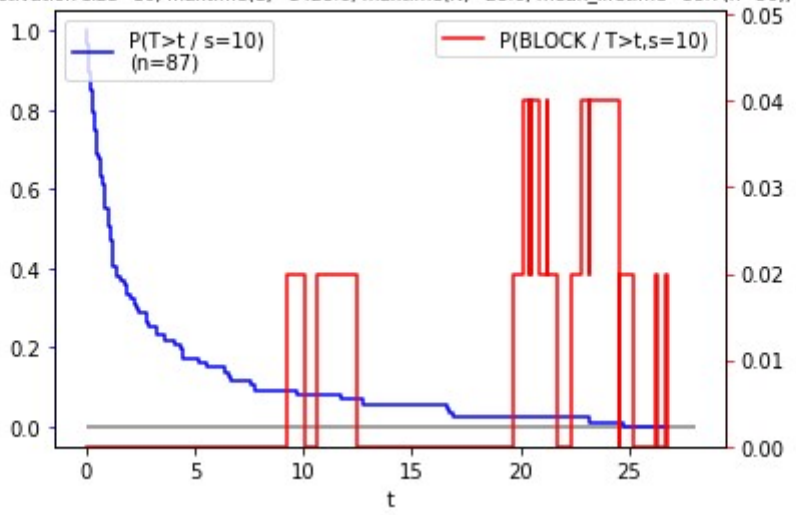
K=20, rhos=[0.7], N=50, activation size=10, maxtime(1)=1428.6, maxtime(N)=28.6, mean_lifetime=22.8(n=50), multiplier=1, seed=1721



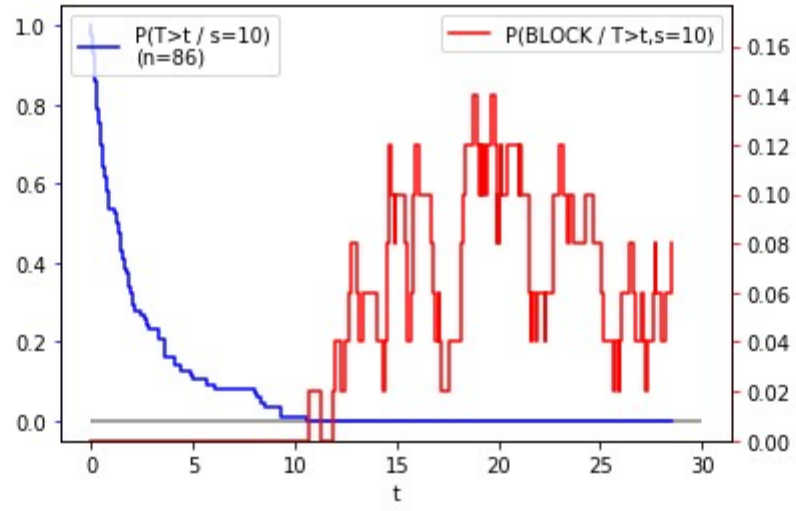
K=20, rhos=[0.7], N=50, activation size=10, maxtime(1)=1428.6, maxtime(N)=28.6, mean_lifetime=101.5(n=50), multiplier=1, seed=1722



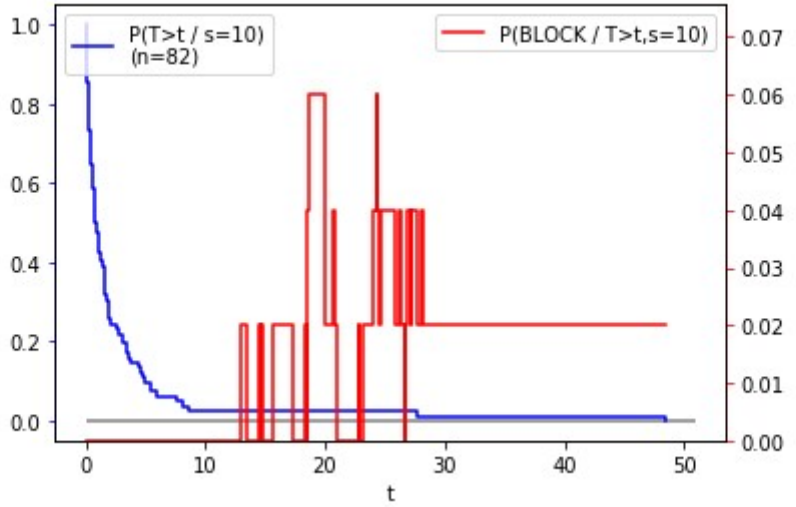
K=20, rhos=[0.7], N=50, activation size=10, maxtime(1)=1428.6, maxtime(N)=28.6, mean_lifetime=88.7(n=50), multiplier=1, seed=1723



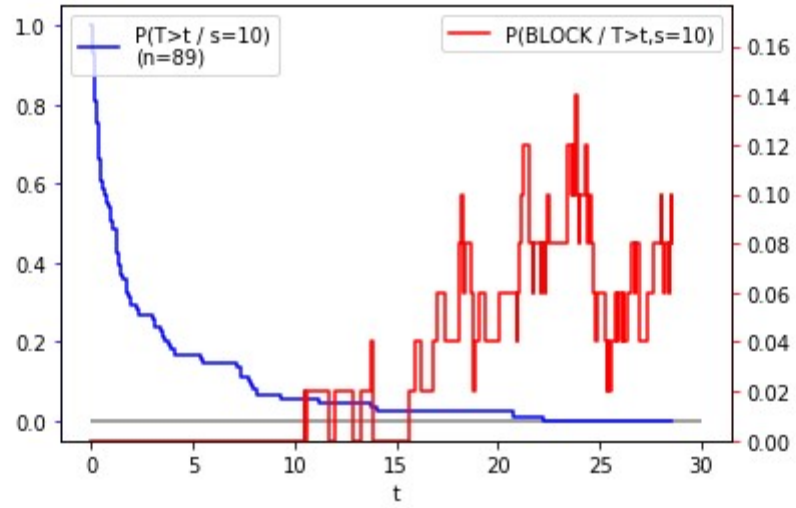
K=20, rhos=[0.7], N=50, activation size=10, maxtime(1)=1428.6, maxtime(N)=28.6, mean_lifetime=153.9(n=50), multiplier=1, seed=1724



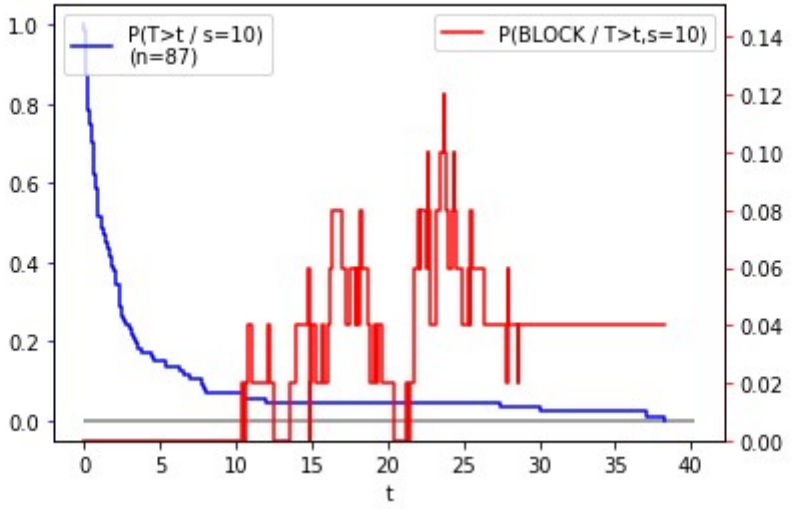
K=20, rhos=[0.7], N=50, activation size=10, maxtime(1)=1428.6, maxtime(N)=28.6, mean_lifetime=48.7(n=50), multiplier=1, seed=1725



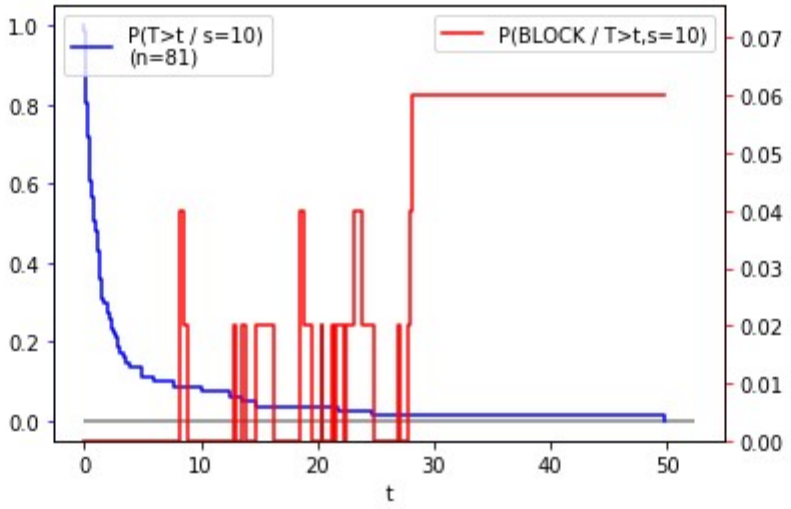
K=20, rhos=[0.7], N=50, activation size=10, maxtime(1)=1428.6, maxtime(N)=28.6, mean_lifetime=136.3(n=49), multiplier=1, seed=1726



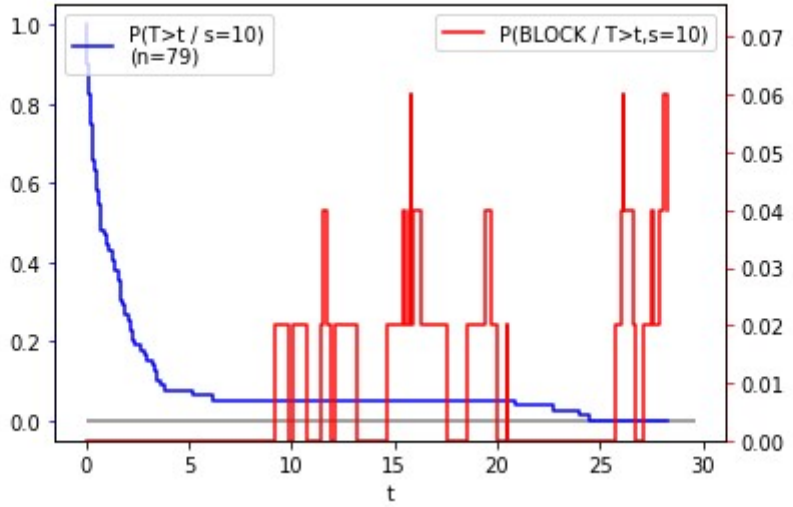
K=20, rhos=[0.7], N=50, activation size=10, maxtime(1)=1428.6, maxtime(N)=28.6, mean_lifetime=125.4(n=50), multiplier=1, seed=1727



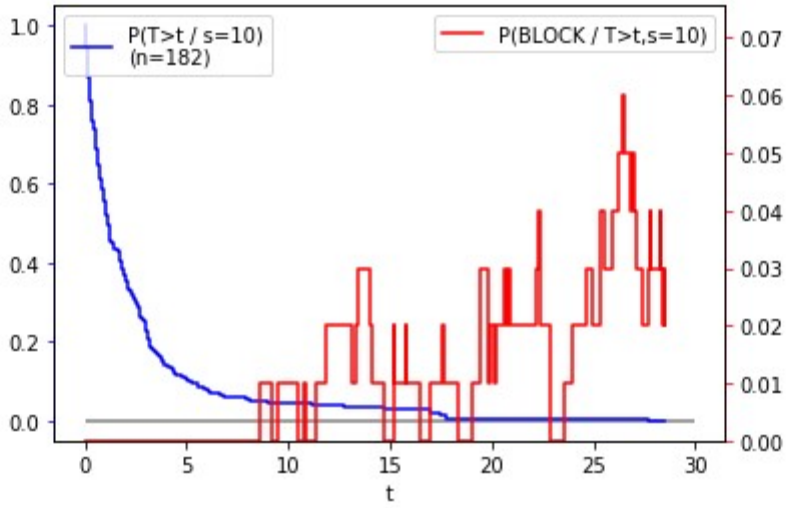
K=20, rhos=[0.7], N=50, activation size=10, maxtime(1)=1428.6, maxtime(N)=28.6, mean_lifetime=142.9(n=50), multiplier=1, seed=1728



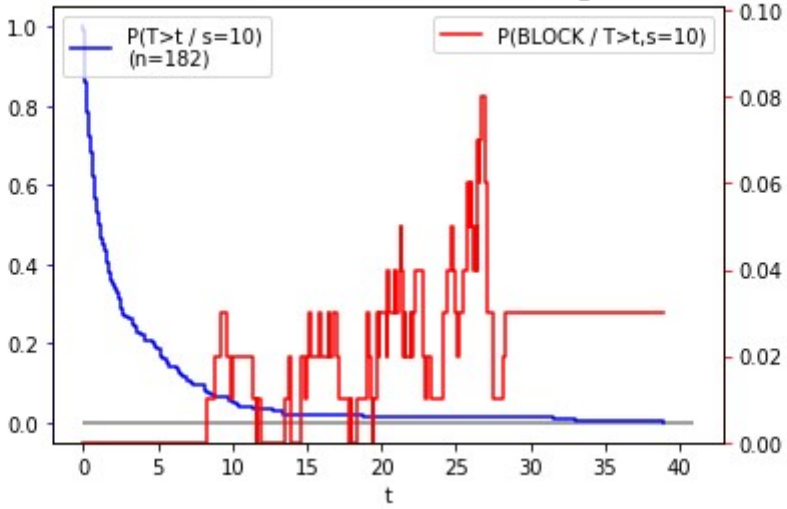
K=20, rhos=[0.7], N=50, activation size=10, maxtime(1)=1428.6, maxtime(N)=28.6, mean_lifetime=95.0(n=50), multiplier=1, seed=1729



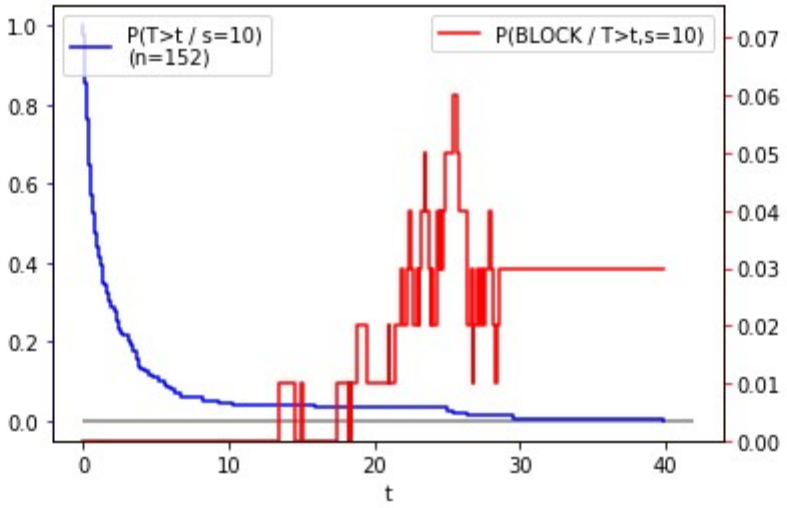
K=20, rhos=[0.7], N=100, activation size=10, maxtime(1)=2857.1, maxtime(N)=28.6, mean_lifetime=97.6(n=100), multiplier=1, seed=1718



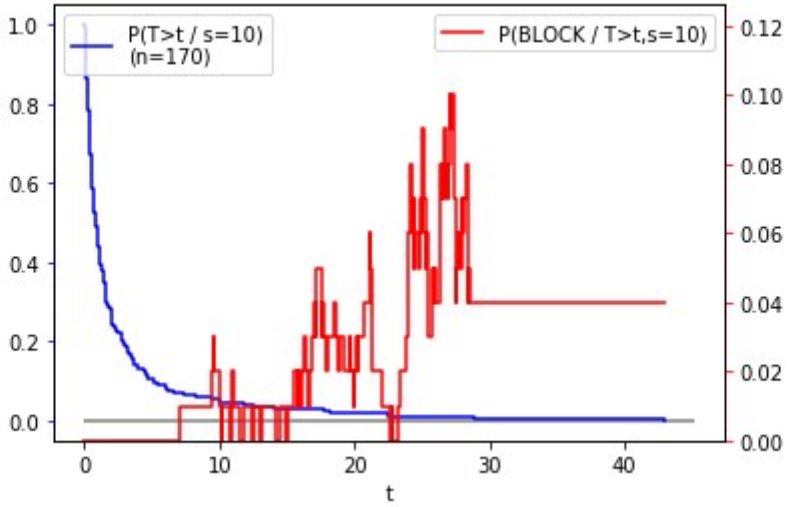
K=20, rhos=[0.7], N=100, activation size=10, maxtime(1)=2857.1, maxtime(N)=28.6, mean_lifetime=118.6(n=100), multiplier=1, seed=1719



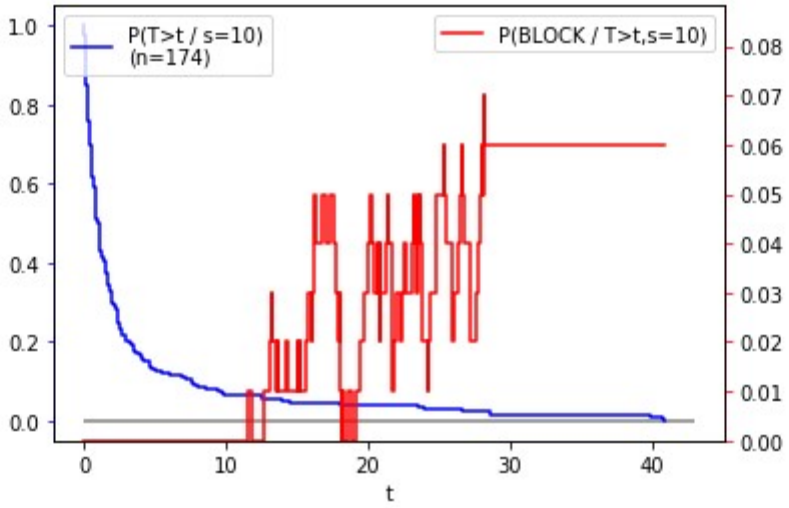
K=20, rhos=[0.7], N=100, activation size=10, maxtime(1)=2857.1, maxtime(N)=28.6, mean_lifetime=120.7(n=100), multiplier=1, seed=1720



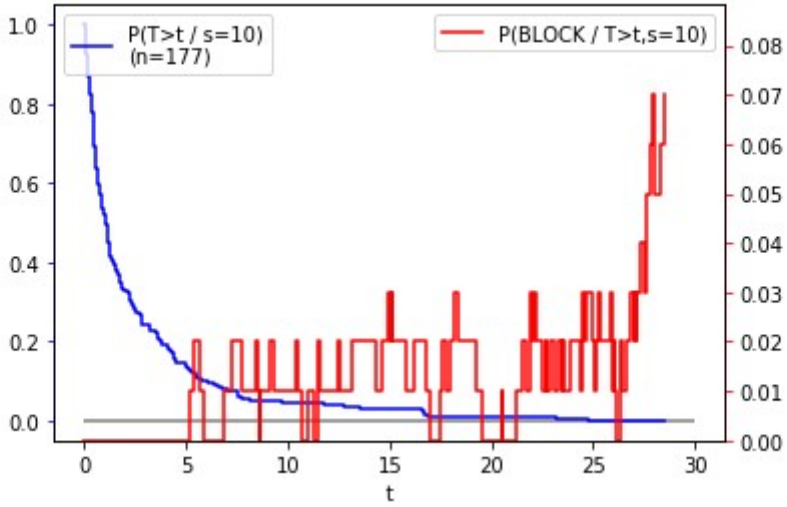
K=20, rhos=[0.7], N=100, activation size=10, maxtime(1)=2857.1, maxtime(N)=28.6, mean_lifetime=61.6(n=100), multiplier=1, seed=1721



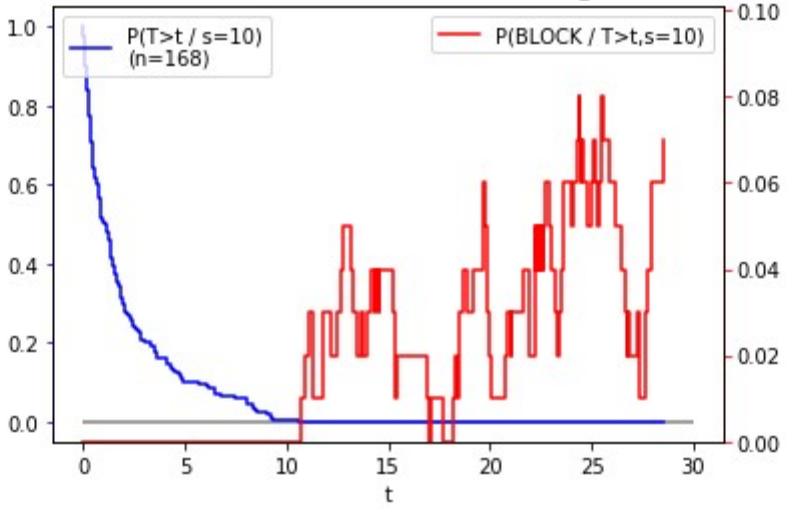
K=20, rhos=[0.7], N=100, activation size=10, maxtime(1)=2857.1, maxtime(N)=28.6, mean_lifetime=88.2(n=100), multiplier=1, seed=1722



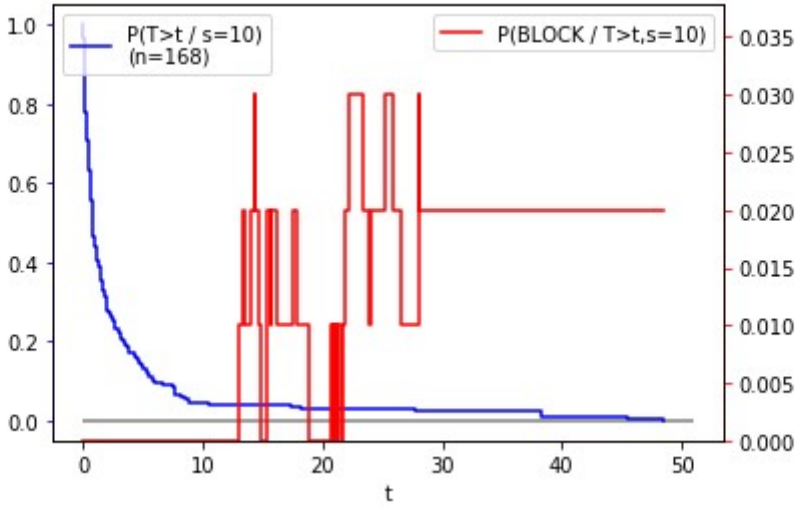
K=20, rhos=[0.7], N=100, activation size=10, maxtime(1)=2857.1, maxtime(N)=28.6, mean_lifetime=83.0(n=100), multiplier=1, seed=1723



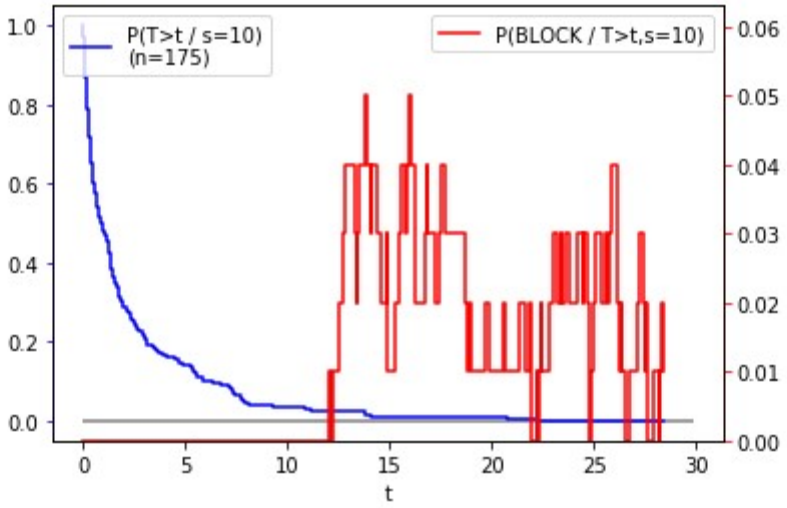
K=20, rhos=[0.7], N=100, activation size=10, maxtime(1)=2857.1, maxtime(N)=28.6, mean_lifetime=155.3(n=100), multiplier=1, seed=1724



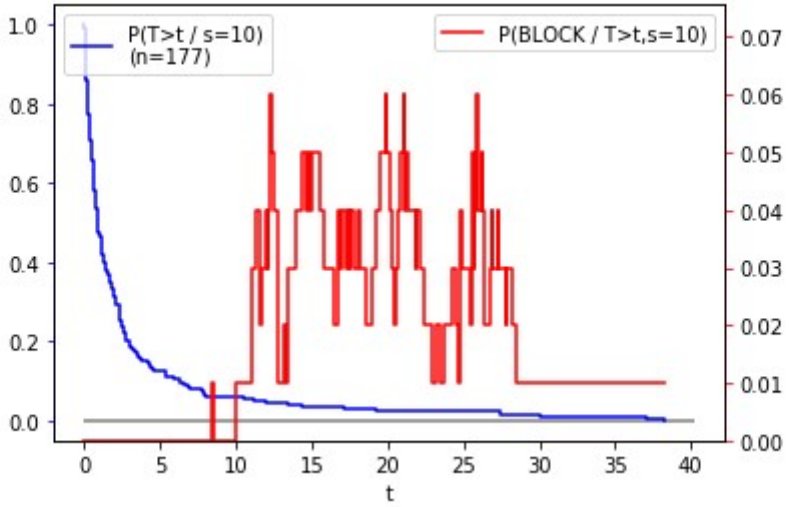
K=20, rhos=[0.7], N=100, activation size=10, maxtime(1)=2857.1, maxtime(N)=28.6, mean_lifetime=108.7(n=100), multiplier=1, seed=1725



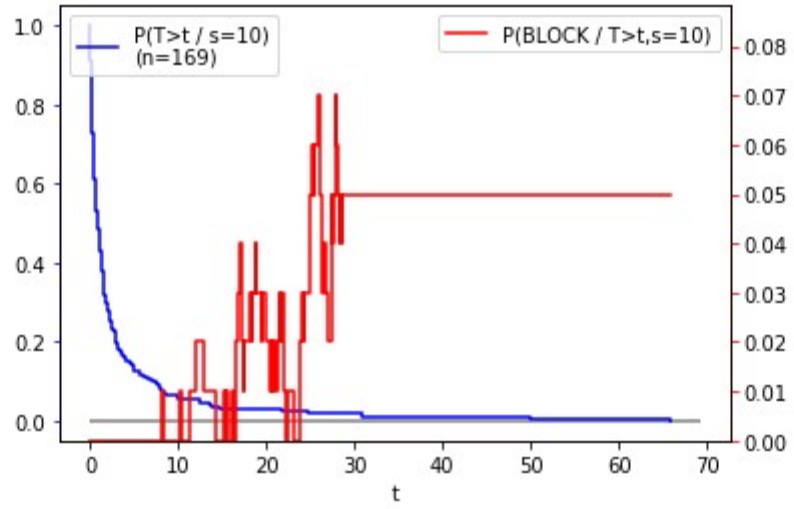
K=20, rhos=[0.7], N=100, activation size=10, maxtime(1)=2857.1, maxtime(N)=28.6, mean_lifetime=122.1(n=100), multiplier=1, seed=1726



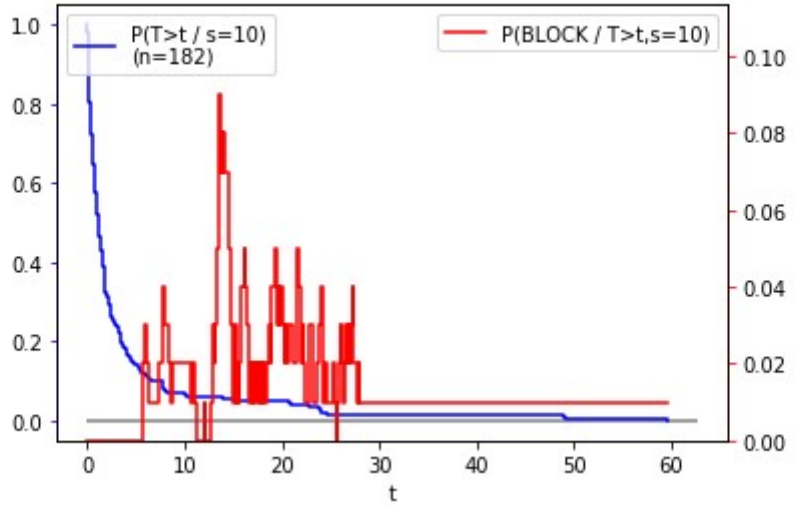
K=20, rhos=[0.7], N=100, activation size=10, maxtime(1)=2857.1, maxtime(N)=28.6, mean_lifetime=94.6(n=100), multiplier=1, seed=1727



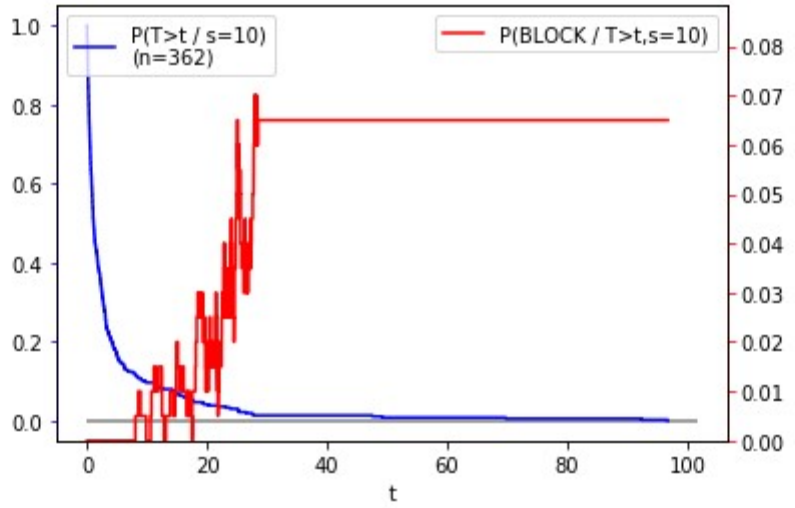
K=20, rhos=[0.7], N=100, activation size=10, maxtime(1)=2857.1, maxtime(N)=28.6, mean_lifetime=120.2(n=100), multiplier=1, seed=1728



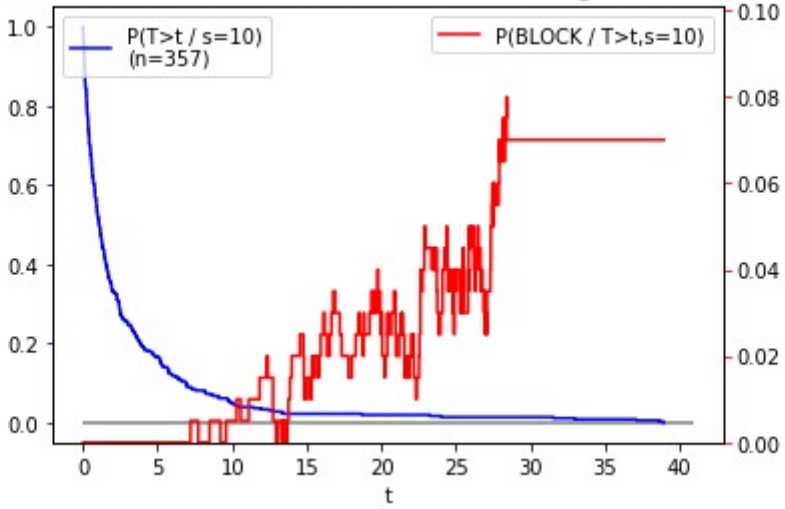
K=20, rhos=[0.7], N=100, activation size=10, maxtime(1)=2857.1, maxtime(N)=28.6, mean_lifetime=109.3(n=100), multiplier=1, seed=1729



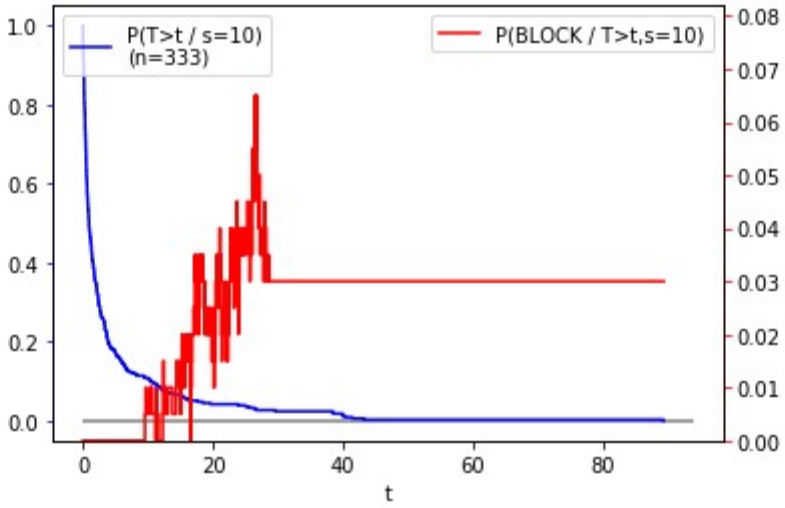
K=20, rhos=[0.7], N=200, activation size=10, maxtime(1)=5714.3, maxtime(N)=28.6, mean_lifetime=119.6(n=200), multiplier=1, seed=1718



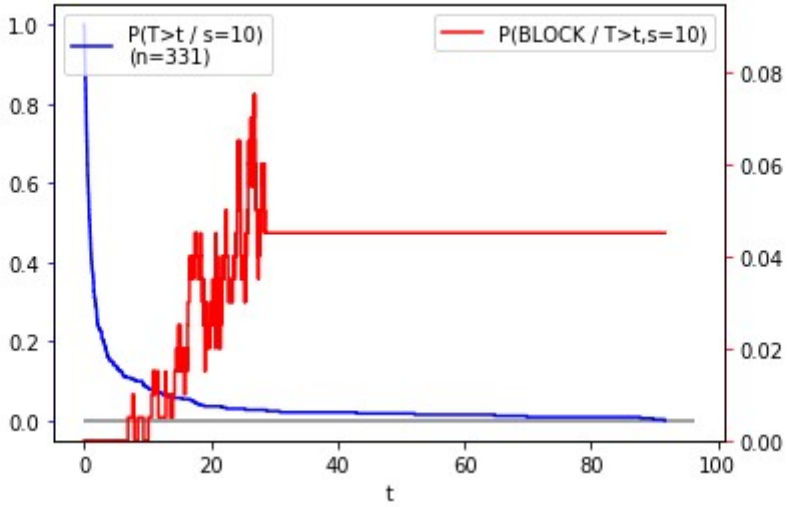
K=20, rhos=[0.7], N=200, activation size=10, maxtime(1)=5714.3, maxtime(N)=28.6, mean_lifetime=135.1(n=200), multiplier=1, seed=1719



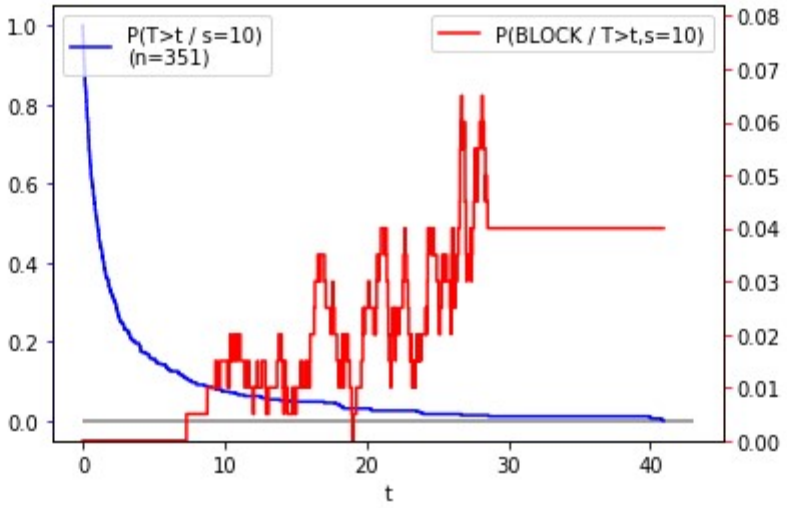
K=20, rhos=[0.7], N=200, activation size=10, maxtime(1)=5714.3, maxtime(N)=28.6, mean_lifetime=105.3(n=200), multiplier=1, seed=1720



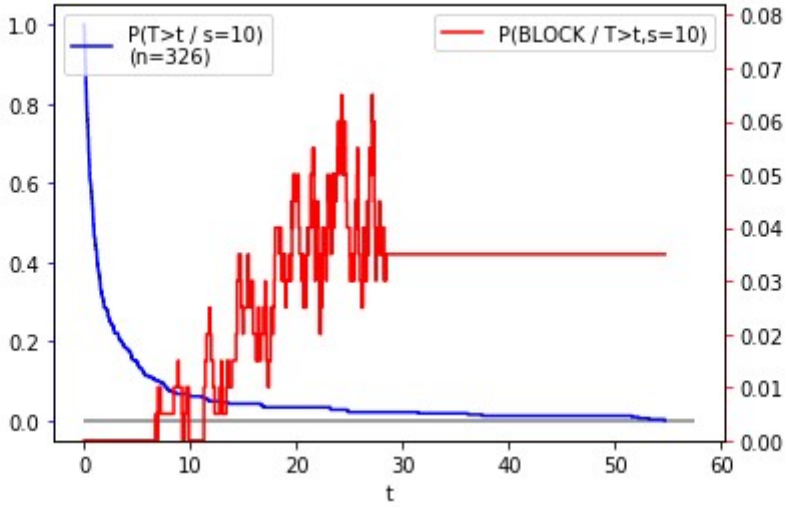
K=20, rhos=[0.7], N=200, activation size=10, maxtime(1)=5714.3, maxtime(N)=28.6, mean_lifetime=83.9(n=200), multiplier=1, seed=1721



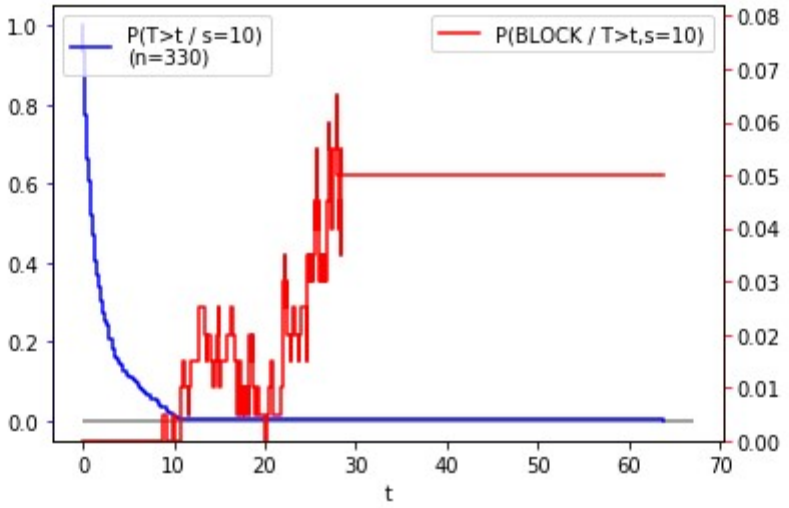
K=20, rhos=[0.7], N=200, activation size=10, maxtime(1)=5714.3, maxtime(N)=28.6, mean_lifetime=100.8(n=200), multiplier=1, seed=1722



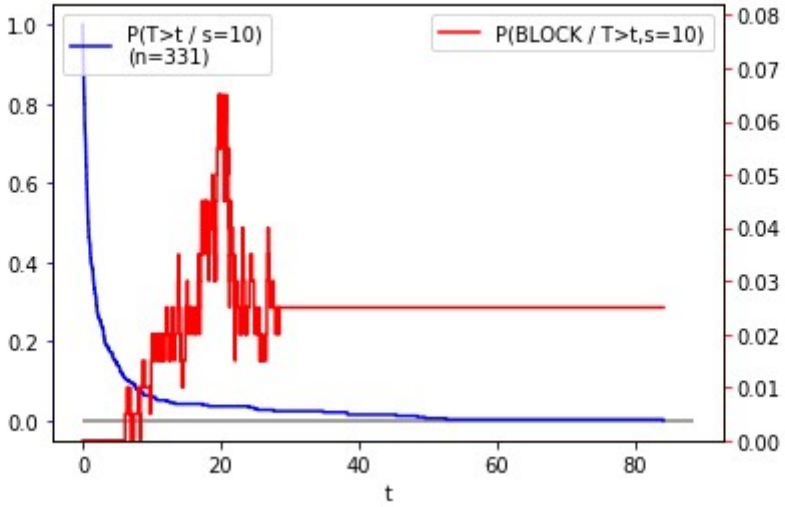
K=20, rhos=[0.7], N=200, activation size=10, maxtime(1)=5714.3, maxtime(N)=28.6, mean_lifetime=93.0(n=200), multiplier=1, seed=1723



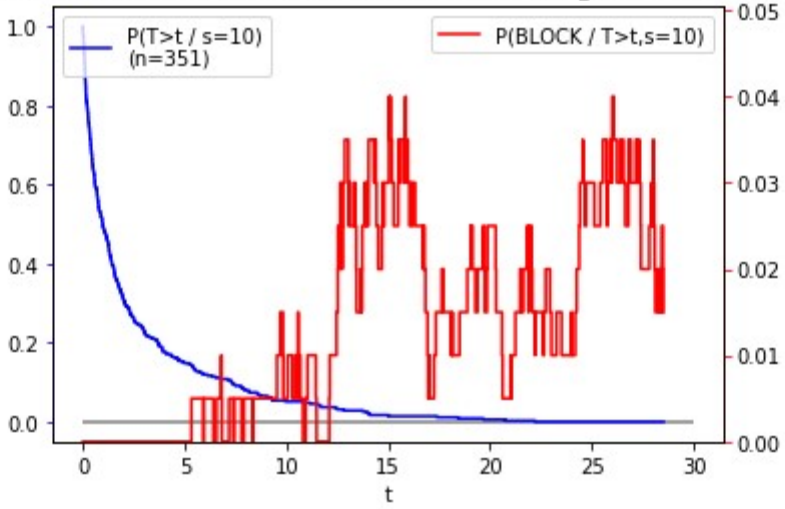
K=20, rhos=[0.7], N=200, activation size=10, maxtime(1)=5714.3, maxtime(N)=28.6, mean_lifetime=153.8(n=200), multiplier=1, seed=1724



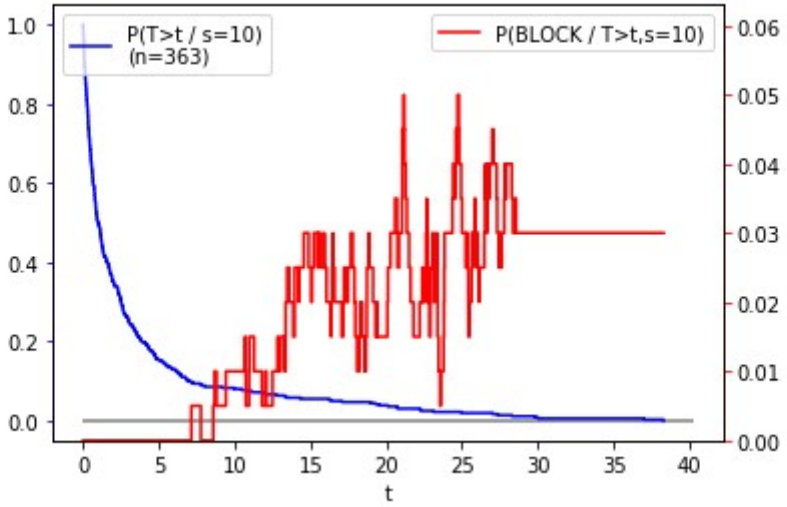
K=20, rhos=[0.7], N=200, activation size=10, maxtime(1)=5714.3, maxtime(N)=28.6, mean_lifetime=106.4(n=200), multiplier=1, seed=1725



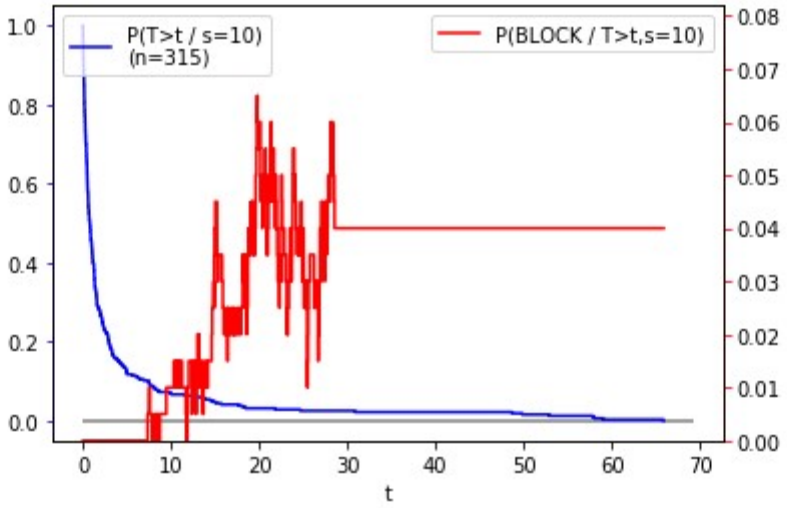
K=20, rhos=[0.7], N=200, activation size=10, maxtime(1)=5714.3, maxtime(N)=28.6, mean_lifetime=147.7(n=200), multiplier=1, seed=1726



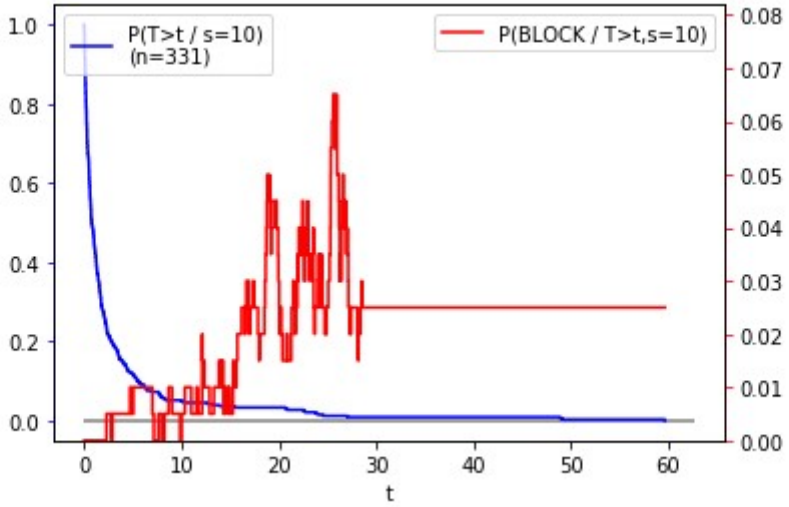
K=20, rhos=[0.7], N=200, activation size=10, maxtime(1)=5714.3, maxtime(N)=28.6, mean_lifetime=118.7(n=200), multiplier=1, seed=1727



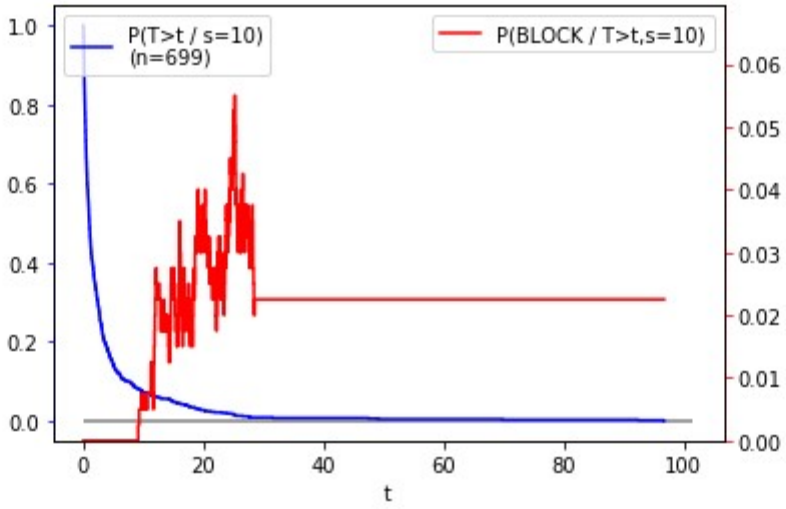
K=20, rhos=[0.7], N=200, activation size=10, maxtime(1)=5714.3, maxtime(N)=28.6, mean_lifetime=110.9(n=200), multiplier=1, seed=1728



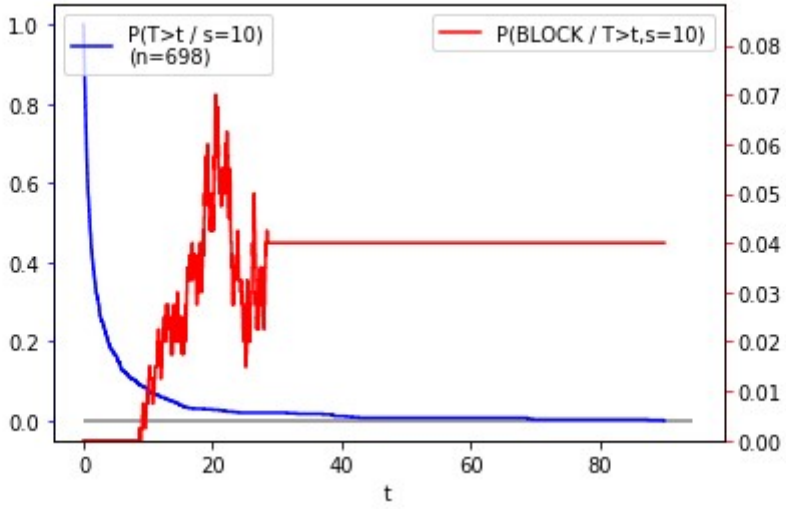
K=20, rhos=[0.7], N=200, activation size=10, maxtime(1)=5714.3, maxtime(N)=28.6, mean_lifetime=91.3(n=200), multiplier=1, seed=1729



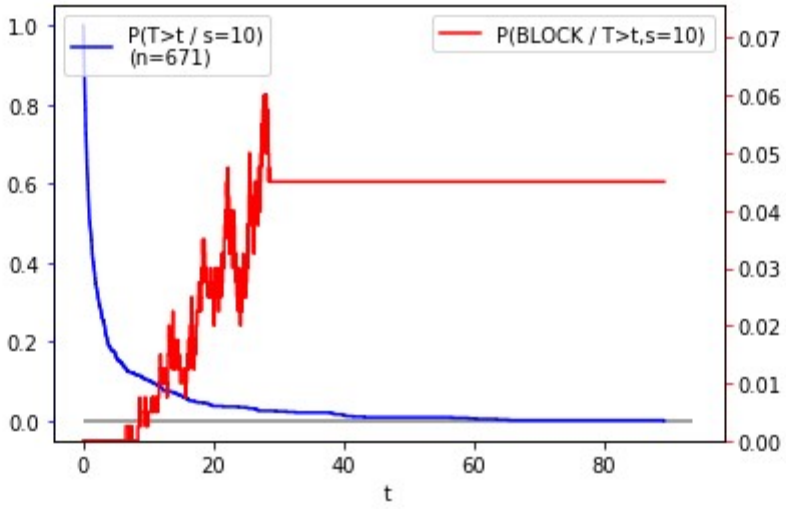
K=20, rhos=[0.7], N=400, activation size=10, maxtime(1)=11428.6, maxtime(N)=28.6, mean_lifetime=114.4(n=400), multiplier=1, seed=1718



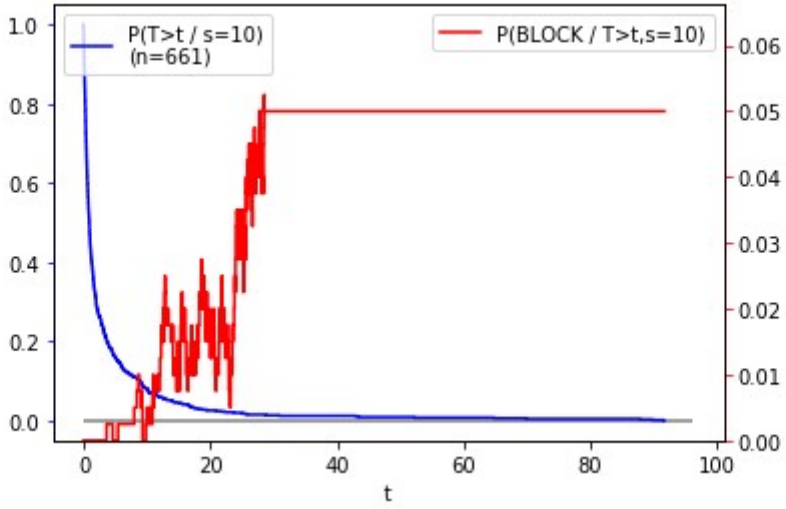
K=20, rhos=[0.7], N=400, activation size=10, maxtime(1)=11428.6, maxtime(N)=28.6, mean_lifetime=116.4(n=400), multiplier=1, seed=1719



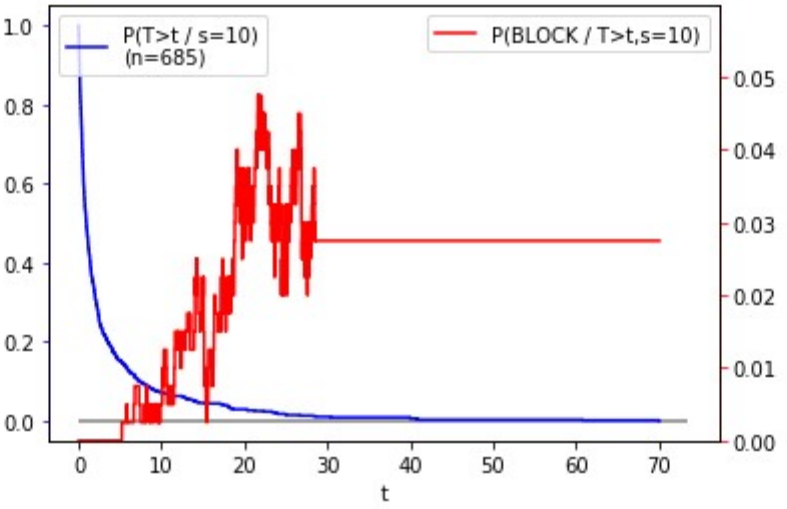
K=20, rhos=[0.7], N=400, activation size=10, maxtime(1)=11428.6, maxtime(N)=28.6, mean_lifetime=125.5(n=400), multiplier=1, seed=1720



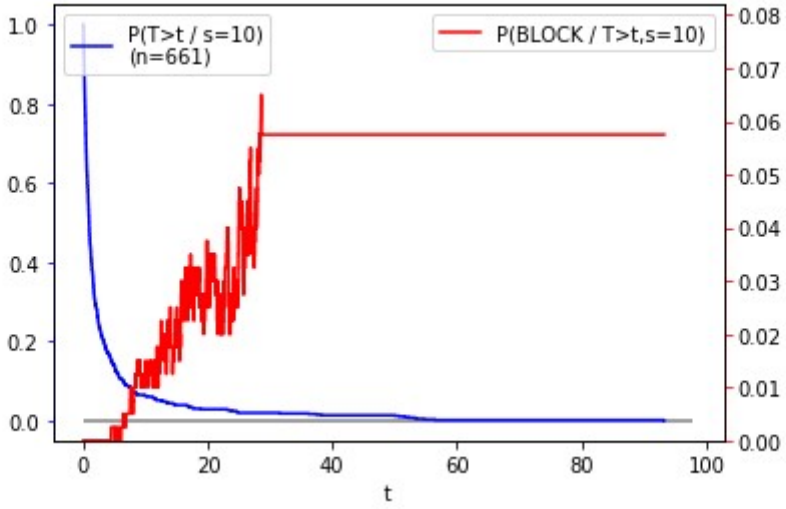
K=20, rhos=[0.7], N=400, activation size=10, maxtime(1)=11428.6, maxtime(N)=28.6, mean_lifetime=109.8(n=400), multiplier=1, seed=1721



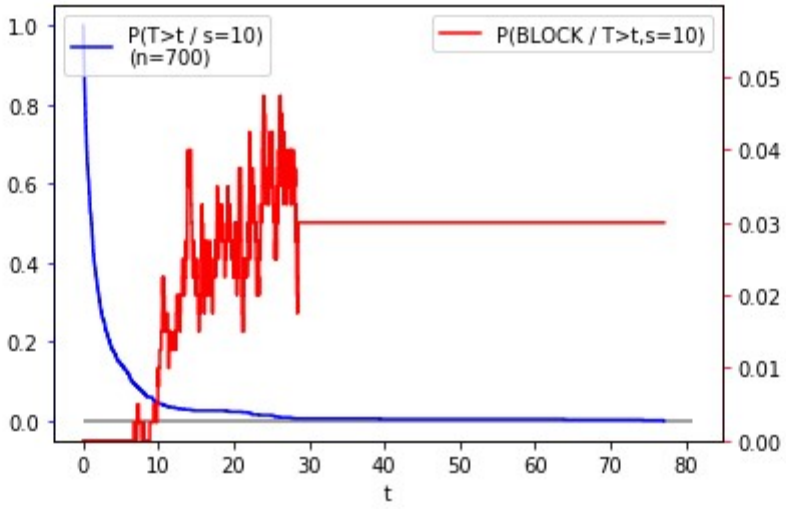
K=20, rhos=[0.7], N=400, activation size=10, maxtime(1)=11428.6, maxtime(N)=28.6, mean_lifetime=93.0(n=400), multiplier=1, seed=1722



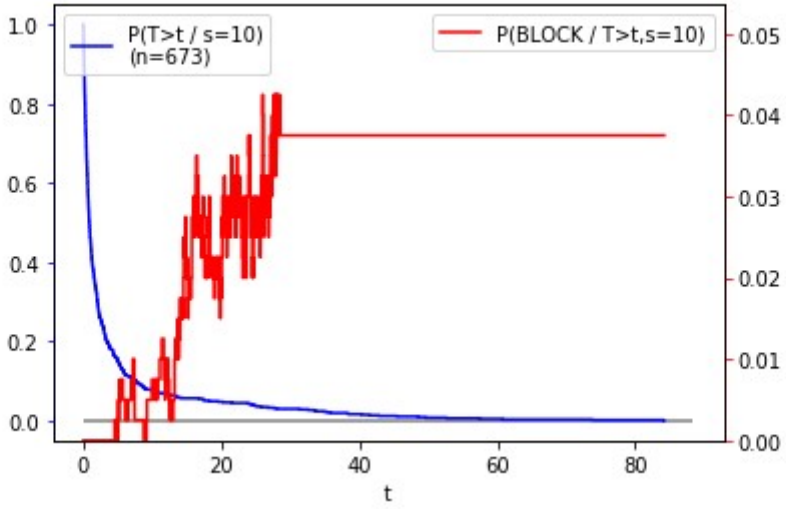
K=20, rhos=[0.7], N=400, activation size=10, maxtime(1)=11428.6, maxtime(N)=28.6, mean_lifetime=104.0(n=400), multiplier=1, seed=1723



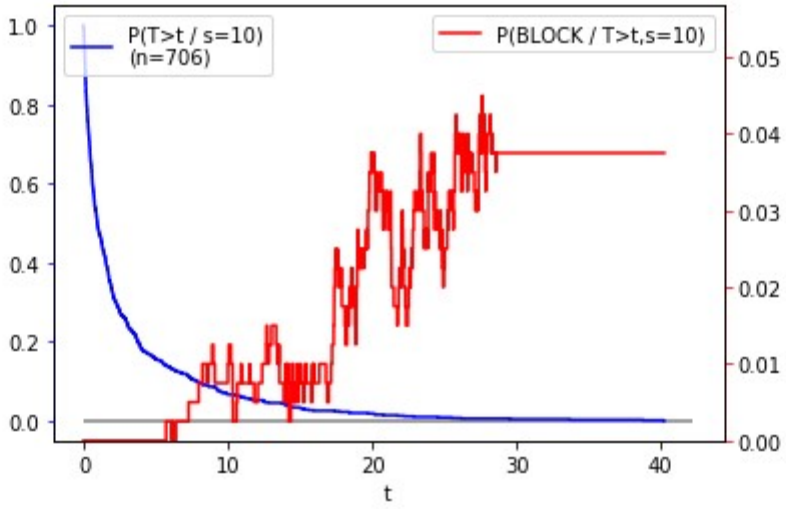
K=20, rhos=[0.7], N=400, activation size=10, maxtime(1)=11428.6, maxtime(N)=28.6, mean_lifetime=165.2(n=400), multiplier=1, seed=1724



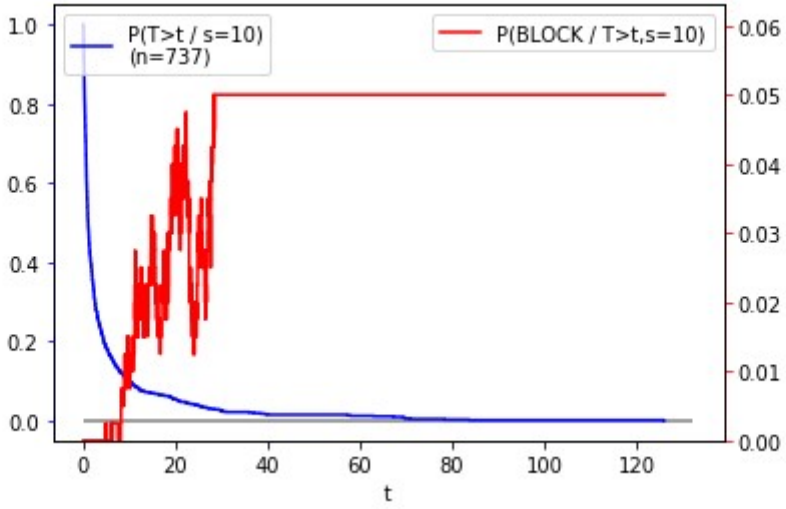
K=20, rhos=[0.7], N=400, activation size=10, maxtime(1)=11428.6, maxtime(N)=28.6, mean_lifetime=114.7(n=400), multiplier=1, seed=1725



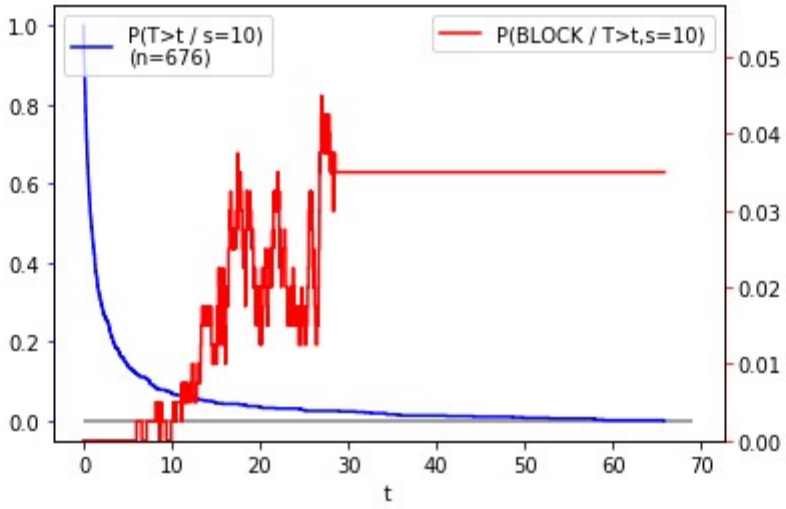
K=20, rhos=[0.7], N=400, activation size=10, maxtime(1)=11428.6, maxtime(N)=28.6, mean_lifetime=131.7(n=400), multiplier=1, seed=1726



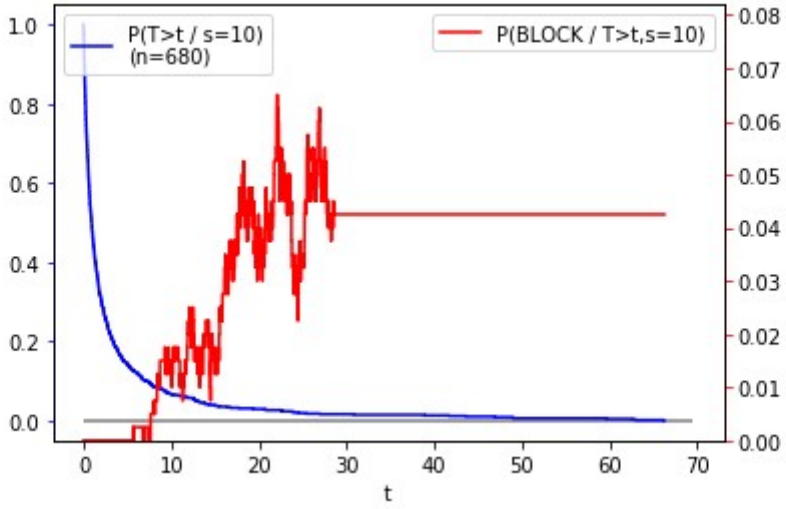
K=20, rhos=[0.7], N=400, activation size=10, maxtime(1)=11428.6, maxtime(N)=28.6, mean_lifetime=112.8(n=400), multiplier=1, seed=1727



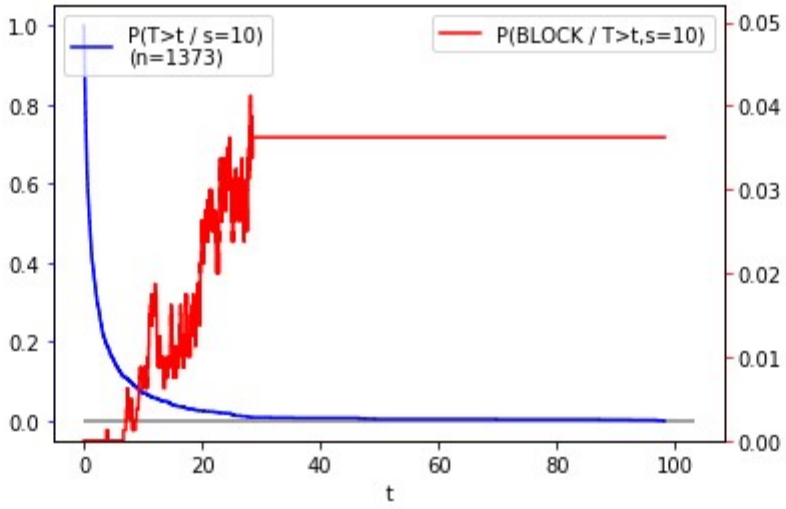
K=20, rhos=[0.7], N=400, activation size=10, maxtime(1)=11428.6, maxtime(N)=28.6, mean_lifetime=100.9(n=400), multiplier=1, seed=1728



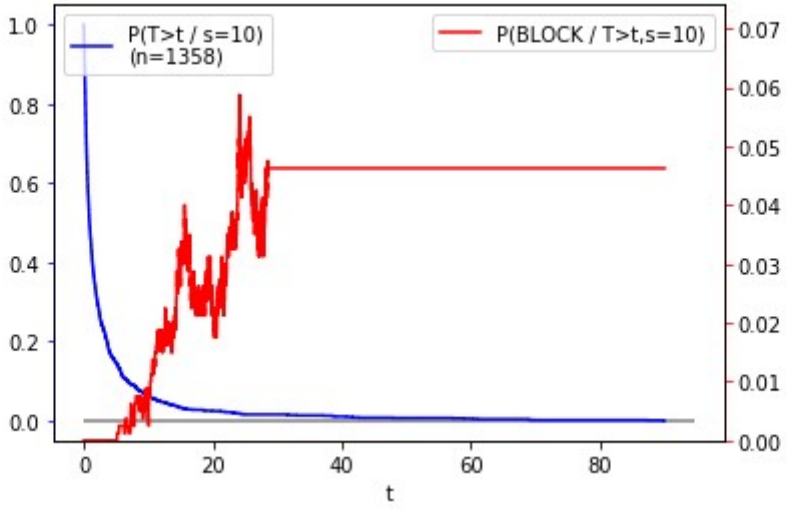
K=20, rhos=[0.7], N=400, activation size=10, maxtime(1)=11428.6, maxtime(N)=28.6, mean_lifetime=109.1(n=400), multiplier=1, seed=1729



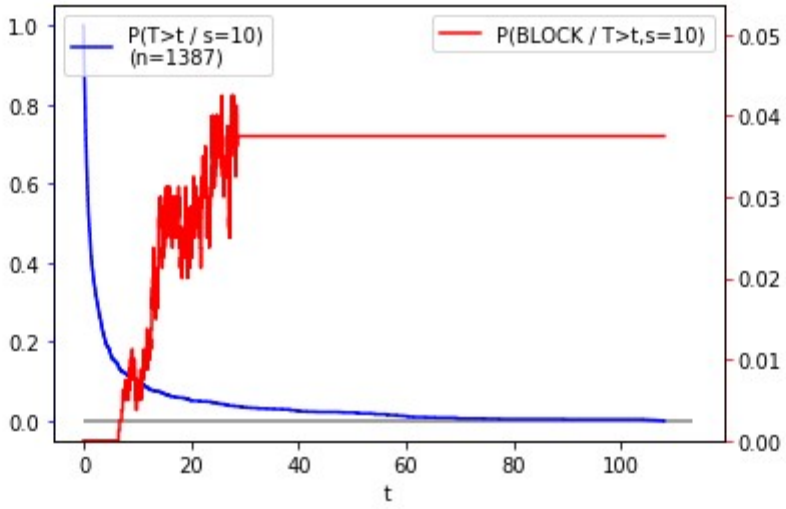
K=20, rhos=[0.7], N=800, activation size=10, maxtime(1)=22857.1, maxtime(N)=28.6, mean_lifetime=119.9(n=800), multiplier=1, seed=1718



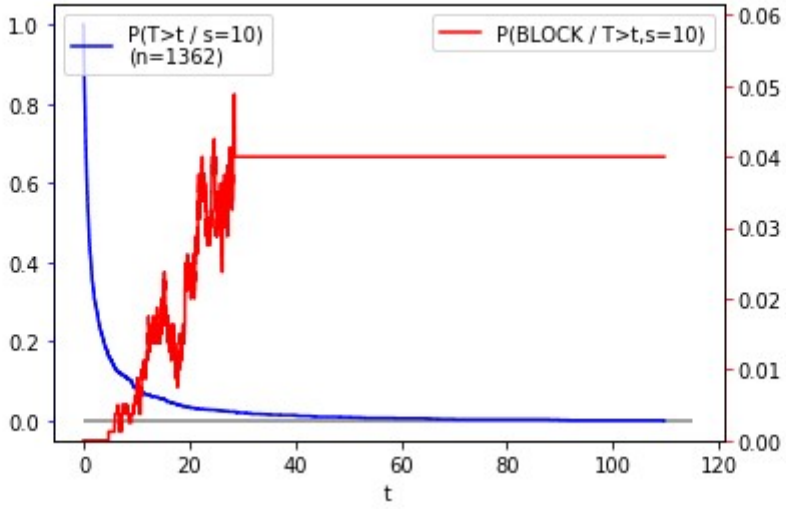
K=20, rhos=[0.7], N=800, activation size=10, maxtime(1)=22857.1, maxtime(N)=28.6, mean_lifetime=102.8(n=800), multiplier=1, seed=1719



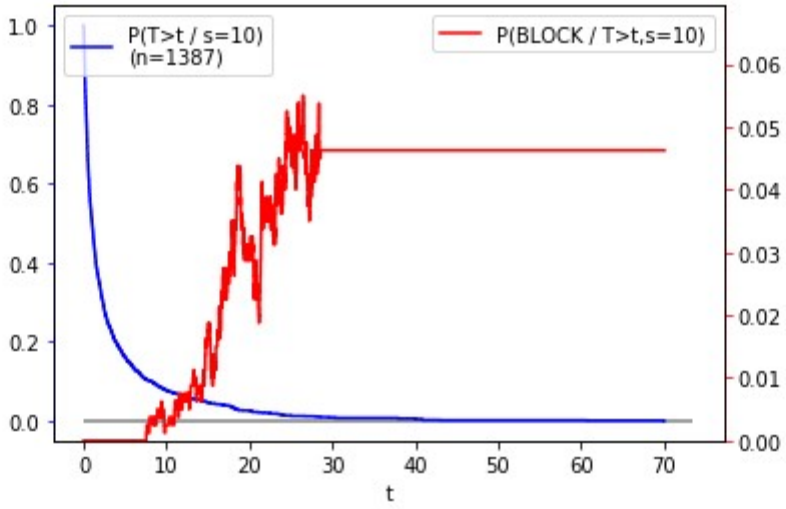
K=20, rhos=[0.7], N=800, activation size=10, maxtime(1)=22857.1, maxtime(N)=28.6, mean_lifetime=125.4(n=800), multiplier=1, seed=1720



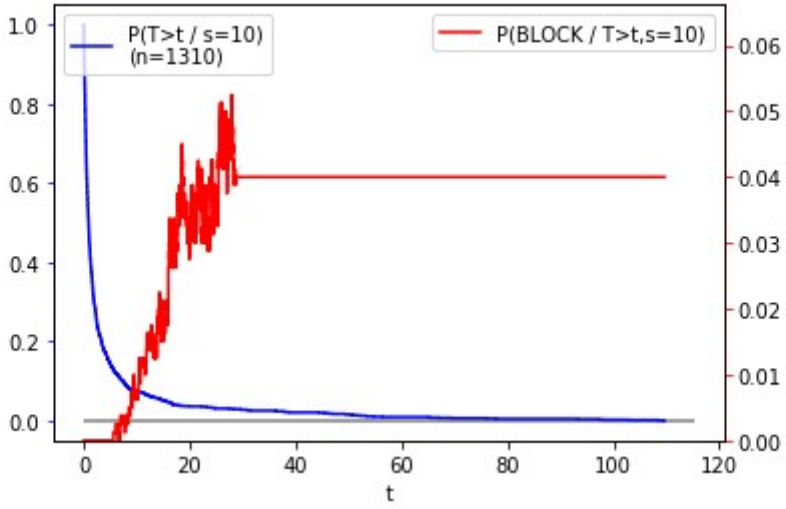
K=20, rhos=[0.7], N=800, activation size=10, maxtime(1)=22857.1, maxtime(N)=28.6, mean_lifetime=122.5(n=800), multiplier=1, seed=1721



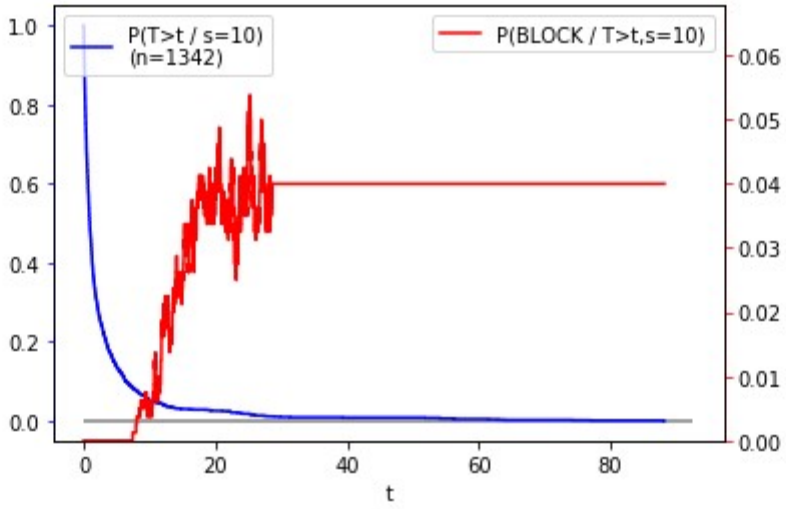
K=20, rhos=[0.7], N=800, activation size=10, maxtime(1)=22857.1, maxtime(N)=28.6, mean_lifetime=108.5(n=800), multiplier=1, seed=1722



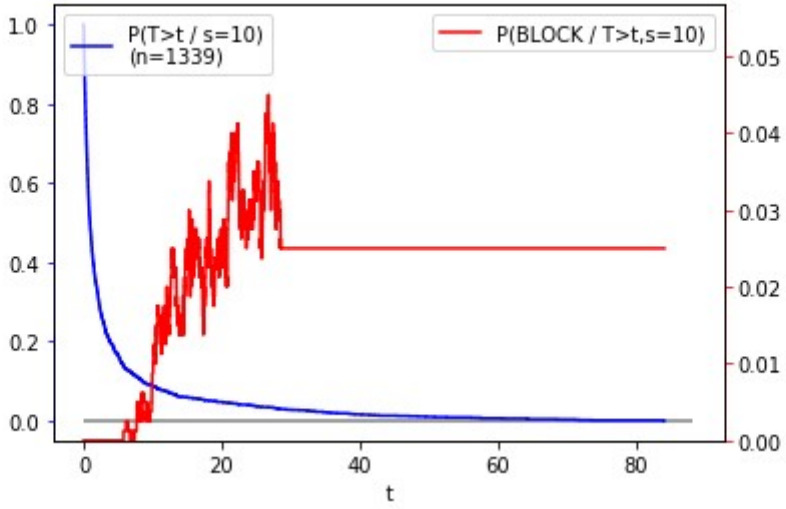
K=20, rhos=[0.7], N=800, activation size=10, maxtime(1)=22857.1, maxtime(N)=28.6, mean_lifetime=109.3(n=800), multiplier=1, seed=1723



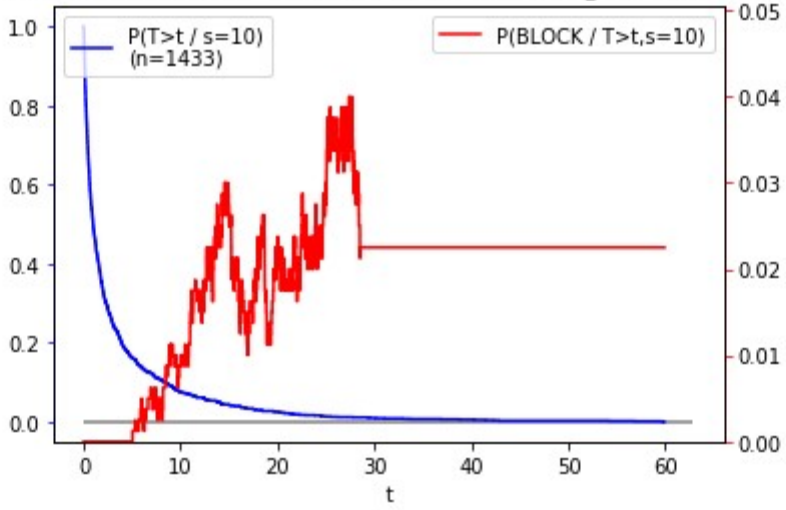
K=20, rhos=[0.7], N=800, activation size=10, maxtime(1)=22857.1, maxtime(N)=28.6, mean_lifetime=139.7(n=800), multiplier=1, seed=1724



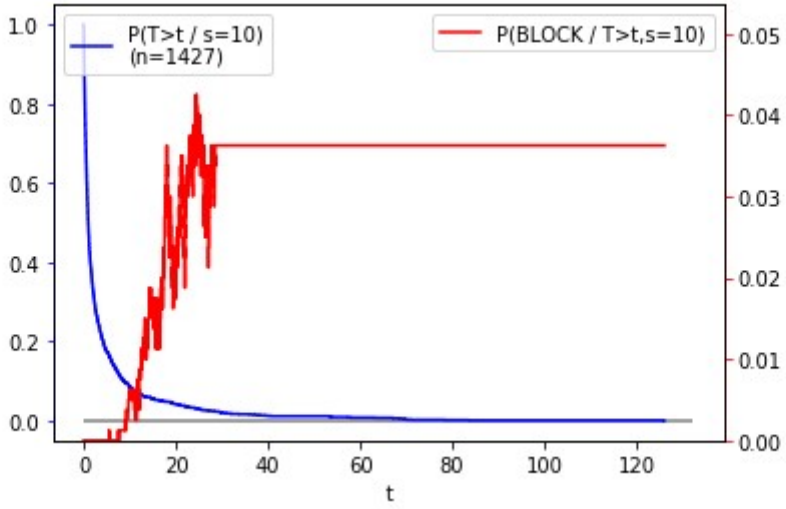
K=20, rhos=[0.7], N=800, activation size=10, maxtime(1)=22857.1, maxtime(N)=28.6, mean_lifetime=123.0(n=800), multiplier=1, seed=1725



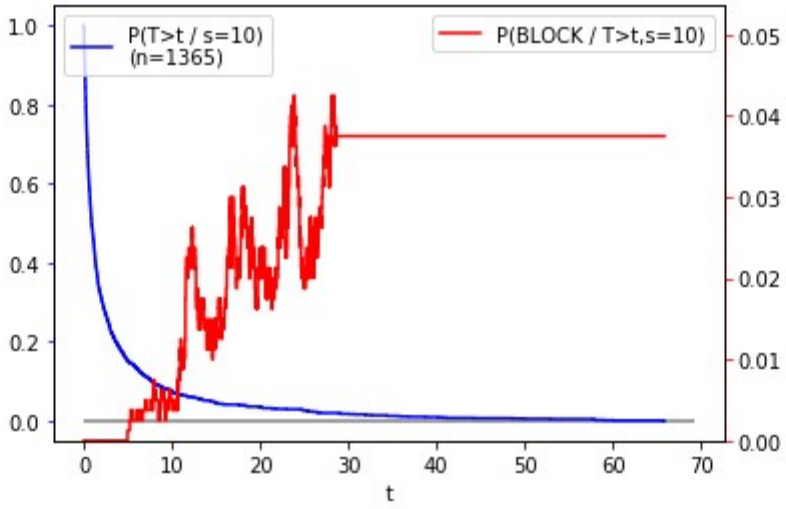
K=20, rhos=[0.7], N=800, activation size=10, maxtime(1)=22857.1, maxtime(N)=28.6, mean_lifetime=127.1(n=800), multiplier=1, seed=1726



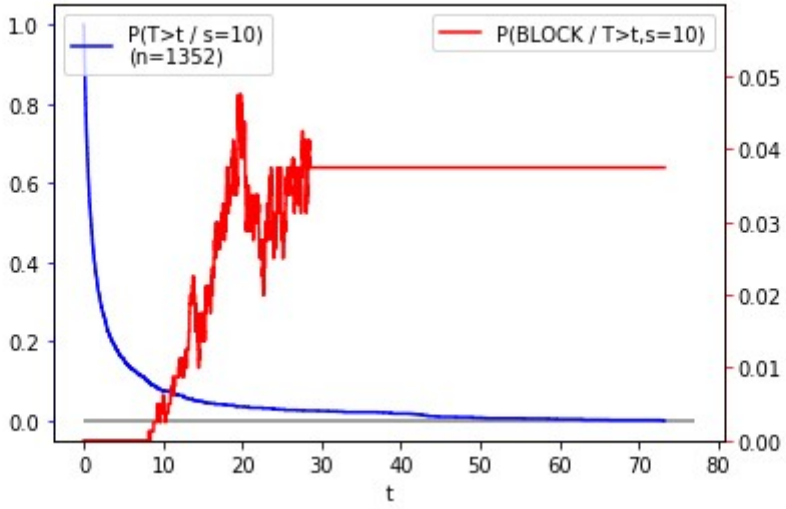
K=20, rhos=[0.7], N=800, activation size=10, maxtime(1)=22857.1, maxtime(N)=28.6, mean_lifetime=113.2(n=800), multiplier=1, seed=1727



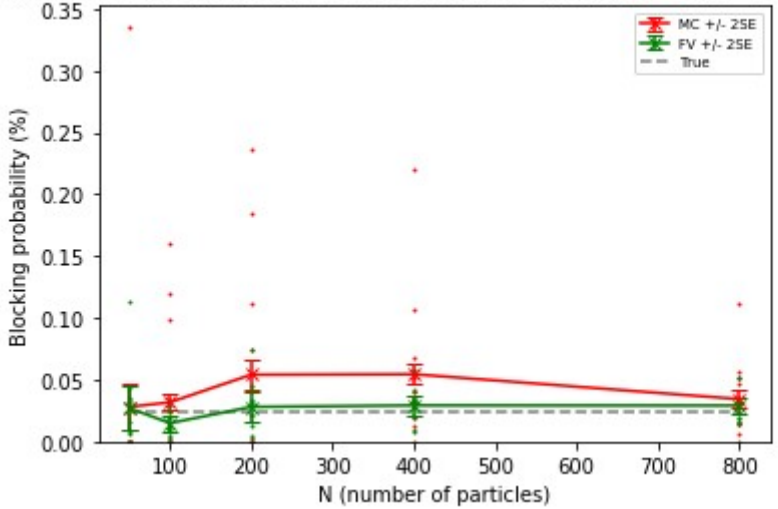
K=20, rhos=[0.7], N=800, activation size=10, maxtime(1)=22857.1, maxtime(N)=28.6, mean_lifetime=111.0(n=800), multiplier=1, seed=1728

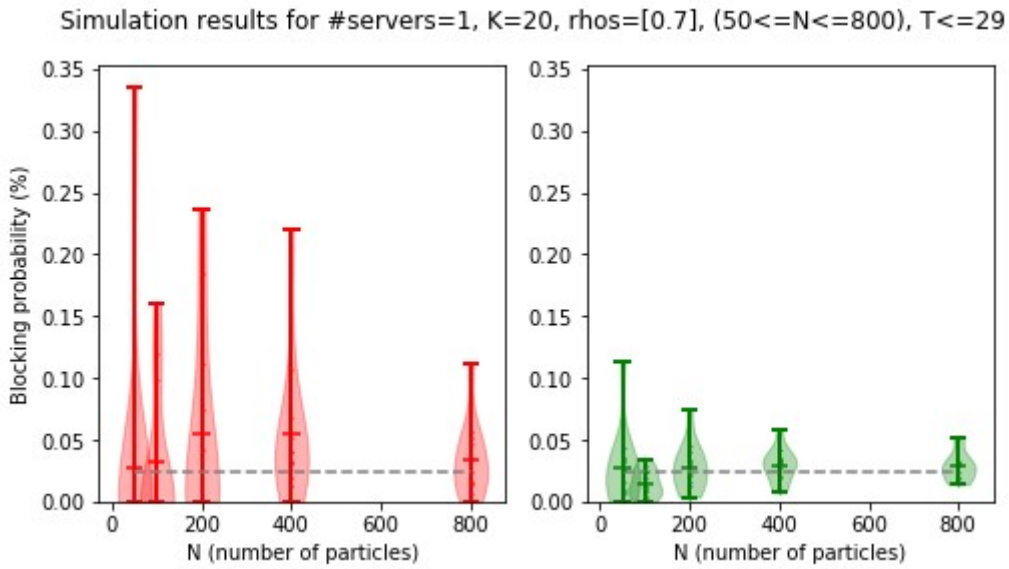


K=20, rhos=[0.7], N=800, activation size=10, maxtime(1)=22857.1, maxtime(N)=28.6, mean_lifetime=109.8(n=800), multiplier=1, seed=1729



Simulation results for #servers=1, K=20, rhos=[0.7], (50<=N<=800), T<=29




Simulation results for #servers=1, K=20, rhos=[0.7], (50<=N<=800), T<=29
Blocking probability (%)
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0
200
400
600
800
N (number of particles)
N (number of particles)

In [2]: