```
Python 3.6.4 |Anaconda custom (64-bit)| (default, Jan 16 2018, 10:22:32) [MSC v.1900 64 bit (AMD64)]
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IPython 6.2.1 -- An enhanced Interactive Python.

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.
System: # servers=3, K=20, rhos=[0.4, 0.75, 0.35], buffer_size_activation=4

*** Running simulation for nparticles=400 (1 of 2) on 5 replications...



        Replication 1 of 5...

        --> Running Fleming-Viot estimation...
        Running Fleming-Viot simulation using an ABSORPTION start state to estimate blocking probability
(seed=1717)...
Range of particle indices to simulate with start state #1 out of 10: [0, 6] (n=7, n/N=0.0175,
p=0.046630, diff=-0.6%, state=[3, 0, 0])
Range of particle indices to simulate with start state #2 out of 10: [7, 45] (n=39, n/N=0.0975,
p=0.087432, diff=0.1%, state=[2, 1, 0])
Range of particle indices to simulate with start state #3 out of 10: [46, 58] (n=13, n/N=0.0325,
p=0.040801, diff=-0.2%, state=[2, 0, 1])
Range of particle indices to simulate with start state #4 out of 10: [59, 134] (n=76, n/N=0.19,
p=0.163934, diff=0.2%, state=[1, 2, 0])
Range of particle indices to simulate with start state #5 out of 10: [135, 161] (n=27, n/N=0.0675,
p=0.076503, diff=-0.1%, state=[1, 1, 1])
Range of particle indices to simulate with start state #6 out of 10: [162, 172] (n=11, n/N=0.0275,
p=0.035701, diff=-0.2%, state=[1, 0, 2])
Range of particle indices to simulate with start state #7 out of 10: [173, 299] (n=127, n/N=0.3175,
p=0.307377, diff=0.0%, state=[0, 3, 0])
Range of particle indices to simulate with start state #8 out of 10: [300, 365] (n=66, n/N=0.165,
p=0.143443, diff=0.2%, state=[0, 2, 1])
Range of particle indices to simulate with start state #9 out of 10: [366, 391] (n=26, n/N=0.065,
p=0.066940, diff=-0.0%, state=[0, 1, 2])
Range of particle indices to simulate with start state #10 out of 10: [392, 399] (n=8, n/N=0.02,
p=0.031239, diff=-0.4%, state=[0, 0, 3])
simulate: [reactivate=True] Generating trajectories for each particle until the first ACTIVATION after
the burn-in period takes place...
--> so that we can start the FV procedure.
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
--> Simulation time reset from T=714.3 to T=46.8.
Generating trajectories for each particle until END OF SIMULATION (T=46.8)...
Finalizing and identifying measurement times...
Estimating blocking probability with Fleming-Viot...
        --> Number of observations for P(T>t) estimation from FV simulation: 400 (N=400)
execution time: 53.1 sec, 0.9 min
        --> Running Monte-Carlo estimation...
        Step 1 of 1: Estimating the blocking probability by Monte-Carlo (seed=1719)...
Range of particle indices to simulate with start state #8 out of 15: [0, 0] (n=1, n/N=1.0, p=0.069744,
diff=13.3%, state=[1, 2, 1])
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
Generating trajectories for each particle until END OF SIMULATION (max #events=70495)...
Finalizing and identifying measurement times...
P=0: Blocking time BEFORE removal: t=28.220, n=59
P=0: Blocking time AFTER removal: t=28.220, n=59
Estimating blocking probability with Monte-Carlo...
        --> Number of observations for Pr(K) estimation: 8590 (8.2% of simulation time
T=285714.28571428574; 100.0% of max #events=70495)
execution time: 55.4 sec, 0.9 min
execution time MC + FV: 108.4 sec, 1.8 min
Computing TRUE blocking probability for nservers=3, K=20, rhos=[0.4, 0.75, 0.35]...
        P(K) by MC: 0.120308% (simulation time = 23456.8 out of max=285714.28571428574, #events 70495
out of 70495)
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        P(K) estimated by FV: 0.044690%, E(T) = 4.9 (simulation time = 21552.4 out of
max=46.76366640124377, #events 70495 out of inf)
        True P(K): 0.124693%



        Replication 2 of 5...

        --> Running Fleming-Viot estimation...
        Running Fleming-Viot simulation using an ABSORPTION start state to estimate blocking probability
(seed=1727)...
Range of particle indices to simulate with start state #1 out of 10: [0, 20] (n=21, n/N=0.0525,
p=0.046630, diff=0.1%, state=[3, 0, 0])
Range of particle indices to simulate with start state #2 out of 10: [21, 49] (n=29, n/N=0.0725,
p=0.087432, diff=-0.2%, state=[2, 1, 0])
Range of particle indices to simulate with start state #3 out of 10: [50, 67] (n=18, n/N=0.045,
p=0.040801, diff=0.1%, state=[2, 0, 1])
Range of particle indices to simulate with start state #4 out of 10: [68, 141] (n=74, n/N=0.185,
p=0.163934, diff=0.1%, state=[1, 2, 0])
Range of particle indices to simulate with start state #5 out of 10: [142, 171] (n=30, n/N=0.075,
p=0.076503, diff=-0.0%, state=[1, 1, 1])
Range of particle indices to simulate with start state #6 out of 10: [172, 181] (n=10, n/N=0.025,
p=0.035701, diff=-0.3%, state=[1, 0, 2])
Range of particle indices to simulate with start state #7 out of 10: [182, 303] (n=122, n/N=0.305,
p=0.307377, diff=-0.0%, state=[0, 3, 0])
Range of particle indices to simulate with start state #8 out of 10: [304, 370] (n=67, n/N=0.1675,
p=0.143443, diff=0.2%, state=[0, 2, 1])
Range of particle indices to simulate with start state #9 out of 10: [371, 392] (n=22, n/N=0.055,
p=0.066940, diff=-0.2%, state=[0, 1, 2])
Range of particle indices to simulate with start state #10 out of 10: [393, 399] (n=7, n/N=0.0175,
p=0.031239, diff=-0.4%, state=[0, 0, 3])
simulate: [reactivate=True] Generating trajectories for each particle until the first ACTIVATION after
the burn-in period takes place...
--> so that we can start the FV procedure.
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
--> Simulation time reset from T=714.3 to T=47.1.
Generating trajectories for each particle until END OF SIMULATION (T=47.1)...
Finalizing and identifying measurement times...
Estimating blocking probability with Fleming-Viot...
        --> Number of observations for P(T>t) estimation from FV simulation: 400 (N=400)
execution time: 59.1 sec, 1.0 min
        --> Running Monte-Carlo estimation...
        Step 1 of 1: Estimating the blocking probability by Monte-Carlo (seed=1729)...
Range of particle indices to simulate with start state #6 out of 15: [0, 0] (n=1, n/N=1.0, p=0.017358,
diff=56.6%, state=[2, 0, 2])
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
Generating trajectories for each particle until END OF SIMULATION (max #events=70655)...
Finalizing and identifying measurement times...
P=0: Blocking time BEFORE removal: t=14.430, n=40
P=0: Blocking time AFTER removal: t=14.430, n=40
Estimating blocking probability with Monte-Carlo...
        --> Number of observations for Pr(K) estimation: 8700 (8.3% of simulation time
T=285714.28571428574; 100.0% of max #events=70655)
execution time: 62.7 sec, 1.0 min
execution time MC + FV: 121.9 sec, 2.0 min
        P(K) by MC: 0.060926% (simulation time = 23684.9 out of max=285714.28571428574, #events 70655
out of 70655)
        P(K) estimated by FV: 0.050441%, E(T) = 4.5 (simulation time = 21508.3 out of
max=47.07217439924658, #events 70655 out of inf)
        True P(K): 0.124693%



        Replication 3 of 5...

        --> Running Fleming-Viot estimation...
        Running Fleming-Viot simulation using an ABSORPTION start state to estimate blocking probability
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(seed=1737)...
Range of particle indices to simulate with start state #1 out of 10: [0, 10] (n=11, n/N=0.0275,
p=0.046630, diff=-0.4%, state=[3, 0, 0])
Range of particle indices to simulate with start state #2 out of 10: [11, 44] (n=34, n/N=0.085,
p=0.087432, diff=-0.0%, state=[2, 1, 0])
Range of particle indices to simulate with start state #3 out of 10: [45, 63] (n=19, n/N=0.0475,
p=0.040801, diff=0.2%, state=[2, 0, 1])
Range of particle indices to simulate with start state #4 out of 10: [64, 134] (n=71, n/N=0.1775,
p=0.163934, diff=0.1%, state=[1, 2, 0])
Range of particle indices to simulate with start state #5 out of 10: [135, 162] (n=28, n/N=0.07,
p=0.076503, diff=-0.1%, state=[1, 1, 1])
Range of particle indices to simulate with start state #6 out of 10: [163, 178] (n=16, n/N=0.04,
p=0.035701, diff=0.1%, state=[1, 0, 2])
Range of particle indices to simulate with start state #7 out of 10: [179, 304] (n=126, n/N=0.315,
p=0.307377, diff=0.0%, state=[0, 3, 0])
Range of particle indices to simulate with start state #8 out of 10: [305, 370] (n=66, n/N=0.165,
p=0.143443, diff=0.2%, state=[0, 2, 1])
Range of particle indices to simulate with start state #9 out of 10: [371, 388] (n=18, n/N=0.045,
p=0.066940, diff=-0.3%, state=[0, 1, 2])
Range of particle indices to simulate with start state #10 out of 10: [389, 399] (n=11, n/N=0.0275,
p=0.031239, diff=-0.1%, state=[0, 0, 3])
simulate: [reactivate=True] Generating trajectories for each particle until the first ACTIVATION after
the burn-in period takes place...
--> so that we can start the FV procedure.
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
--> Simulation time reset from T=714.3 to T=68.8.
Generating trajectories for each particle until END OF SIMULATION (T=68.8)...
Finalizing and identifying measurement times...
Estimating blocking probability with Fleming-Viot...
        --> Number of observations for P(T>t) estimation from FV simulation: 400 (N=400)
execution time: 83.1 sec, 1.4 min
        --> Running Monte-Carlo estimation...
        Step 1 of 1: Estimating the blocking probability by Monte-Carlo (seed=1739)...
Range of particle indices to simulate with start state #11 out of 15: [0, 0] (n=1, n/N=1.0, p=0.280221,
diff=2.6%, state=[0, 4, 0])
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
Generating trajectories for each particle until END OF SIMULATION (max #events=101344)...
Finalizing and identifying measurement times...
P=0: Blocking time BEFORE removal: t=61.163, n=127
P=0: Blocking time AFTER removal: t=61.163, n=127
Estimating blocking probability with Monte-Carlo...
        --> Number of observations for Pr(K) estimation: 11996 (11.9% of simulation time
T=285714.28571428574; 100.0% of max #events=101344)
execution time: 90.3 sec, 1.5 min
execution time MC + FV: 173.5 sec, 2.9 min
        P(K) by MC: 0.180205% (simulation time = 33940.9 out of max=285714.28571428574, #events 101344
out of 101344)
        P(K) estimated by FV: 0.057854%, E(T) = 4.8 (simulation time = 30934.9 out of
max=68.77863122333697, #events 101344 out of inf)
        True P(K): 0.124693%



        Replication 4 of 5...

        --> Running Fleming-Viot estimation...
        Running Fleming-Viot simulation using an ABSORPTION start state to estimate blocking probability
(seed=1747)...
Range of particle indices to simulate with start state #1 out of 10: [0, 19] (n=20, n/N=0.05,
p=0.046630, diff=0.1%, state=[3, 0, 0])
Range of particle indices to simulate with start state #2 out of 10: [20, 51] (n=32, n/N=0.08,
p=0.087432, diff=-0.1%, state=[2, 1, 0])
Range of particle indices to simulate with start state #3 out of 10: [52, 72] (n=21, n/N=0.0525,
p=0.040801, diff=0.3%, state=[2, 0, 1])
Range of particle indices to simulate with start state #4 out of 10: [73, 142] (n=70, n/N=0.175,
p=0.163934, diff=0.1%, state=[1, 2, 0])
Range of particle indices to simulate with start state #5 out of 10: [143, 177] (n=35, n/N=0.0875,
p=0.076503, diff=0.1%, state=[1, 1, 1])
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Range of particle indices to simulate with start state #6 out of 10: [178, 197] (n=20, n/N=0.05,
p=0.035701, diff=0.4%, state=[1, 0, 2])
Range of particle indices to simulate with start state #7 out of 10: [198, 309] (n=112, n/N=0.28,
p=0.307377, diff=-0.1%, state=[0, 3, 0])
Range of particle indices to simulate with start state #8 out of 10: [310, 361] (n=52, n/N=0.13,
p=0.143443, diff=-0.1%, state=[0, 2, 1])
Range of particle indices to simulate with start state #9 out of 10: [362, 388] (n=27, n/N=0.0675,
p=0.066940, diff=0.0%, state=[0, 1, 2])
Range of particle indices to simulate with start state #10 out of 10: [389, 399] (n=11, n/N=0.0275,
p=0.031239, diff=-0.1%, state=[0, 0, 3])
simulate: [reactivate=True] Generating trajectories for each particle until the first ACTIVATION after
the burn-in period takes place...
--> so that we can start the FV procedure.
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
--> Simulation time reset from T=714.3 to T=77.7.
Generating trajectories for each particle until END OF SIMULATION (T=77.7)...
Finalizing and identifying measurement times...
Estimating blocking probability with Fleming-Viot...
        --> Number of observations for P(T>t) estimation from FV simulation: 400 (N=400)
execution time: 97.8 sec, 1.6 min
        --> Running Monte-Carlo estimation...
        Step 1 of 1: Estimating the blocking probability by Monte-Carlo (seed=1749)...
Range of particle indices to simulate with start state #11 out of 15: [0, 0] (n=1, n/N=1.0, p=0.280221,
diff=2.6%, state=[0, 4, 0])
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
Generating trajectories for each particle until END OF SIMULATION (max #events=110472)...
Finalizing and identifying measurement times...
Estimating blocking probability with Monte-Carlo...
        --> Number of observations for Pr(K) estimation: 13177 (12.8% of simulation time
T=285714.28571428574; 100.0% of max #events=110472)
execution time: 106.3 sec, 1.8 min
execution time MC + FV: 204.3 sec, 3.4 min
        P(K) by MC: 0.122326% (simulation time = 36649.4 out of max=285714.28571428574, #events 110472
out of 110472)
        P(K) estimated by FV: 0.067286%, E(T) = 4.7 (simulation time = 33784.8 out of
max=77.7211624241811, #events 110472 out of inf)
        True P(K): 0.124693%



        Replication 5 of 5...

        --> Running Fleming-Viot estimation...
        Running Fleming-Viot simulation using an ABSORPTION start state to estimate blocking probability
(seed=1757)...
Range of particle indices to simulate with start state #1 out of 10: [0, 21] (n=22, n/N=0.055,
p=0.046630, diff=0.2%, state=[3, 0, 0])
Range of particle indices to simulate with start state #2 out of 10: [22, 63] (n=42, n/N=0.105,
p=0.087432, diff=0.2%, state=[2, 1, 0])
Range of particle indices to simulate with start state #3 out of 10: [64, 80] (n=17, n/N=0.0425,
p=0.040801, diff=0.0%, state=[2, 0, 1])
Range of particle indices to simulate with start state #4 out of 10: [81, 154] (n=74, n/N=0.185,
p=0.163934, diff=0.1%, state=[1, 2, 0])
Range of particle indices to simulate with start state #5 out of 10: [155, 178] (n=24, n/N=0.06,
p=0.076503, diff=-0.2%, state=[1, 1, 1])
Range of particle indices to simulate with start state #6 out of 10: [179, 195] (n=17, n/N=0.0425,
p=0.035701, diff=0.2%, state=[1, 0, 2])
Range of particle indices to simulate with start state #7 out of 10: [196, 296] (n=101, n/N=0.2525,
p=0.307377, diff=-0.2%, state=[0, 3, 0])
Range of particle indices to simulate with start state #8 out of 10: [297, 362] (n=66, n/N=0.165,
p=0.143443, diff=0.2%, state=[0, 2, 1])
Range of particle indices to simulate with start state #9 out of 10: [363, 385] (n=23, n/N=0.0575,
p=0.066940, diff=-0.1%, state=[0, 1, 2])
Range of particle indices to simulate with start state #10 out of 10: [386, 399] (n=14, n/N=0.035,
p=0.031239, diff=0.1%, state=[0, 0, 3])
simulate: [reactivate=True] Generating trajectories for each particle until the first ACTIVATION after
the burn-in period takes place...
--> so that we can start the FV procedure.
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simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
--> Simulation time reset from T=714.3 to T=78.5.
Generating trajectories for each particle until END OF SIMULATION (T=78.5)...
Finalizing and identifying measurement times...
Estimating blocking probability with Fleming-Viot...
        --> Number of observations for P(T>t) estimation from FV simulation: 400 (N=400)
execution time: 125.5 sec, 2.1 min
        --> Running Monte-Carlo estimation...
        Step 1 of 1: Estimating the blocking probability by Monte-Carlo (seed=1759)...
Range of particle indices to simulate with start state #11 out of 15: [0, 0] (n=1, n/N=1.0, p=0.280221,
diff=2.6%, state=[0, 4, 0])
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
Generating trajectories for each particle until END OF SIMULATION (max #events=112539)...
Finalizing and identifying measurement times...
P=0: Blocking time BEFORE removal: t=39.121, n=73
P=0: [<EventType.ABSORPTION: 0>] events at time 37531.9 removed.
P=0: Blocking time AFTER removal: t=39.121, n=73
Estimating blocking probability with Monte-Carlo...
        --> Number of observations for Pr(K) estimation: 14060 (13.1% of simulation time
T=285714.28571428574; 100.0% of max #events=112539)
execution time: 97.7 sec, 1.6 min
execution time MC + FV: 223.3 sec, 3.7 min
        P(K) by MC: 0.104235% (simulation time = 37531.9 out of max=285714.28571428574, #events 112539
out of 112539)
        P(K) estimated by FV: 0.087508%, E(T) = 5.3 (simulation time = 34243.3 out of
max=78.45069528381777, #events 112539 out of inf)
        True P(K): 0.124693%
Results:
    K BSA    N burnin_cycles replication    Pr(MC)      Time(MC) #Events(MC)  \
1  20   4  400             1           1  0.001203  23456.823596       70495
1  20   4  400             1           2  0.000609  23684.878511       70655
1  20   4  400             1           3  0.001802  33940.855527      101344
1  20   4  400             1           4  0.001223  36649.385467      110472
1  20   4  400             1           5  0.001042  37531.908916      112539

  #Cycles(MC)      E(T) #Cycles(E(T))    Pr(FV)      Time(FV) #Events(FV)  \
1        8590  4.923781           400  0.000447  21552.382244       70495
1        8700  4.514685           400  0.000504  21508.305520       70655
1       11996  4.816041           400  0.000579  30934.868832      101344
1       13177  4.667617           400  0.000673  33784.833785      110472
1       14060  5.302102           400  0.000875  34243.287079      112539

  #Samples(S(t))     Pr(K)  seed   exec_time
1            400  0.001247  1719  108.414296
1            400  0.001247  1729  121.906596
1            400  0.001247  1739  173.461076
1            400  0.001247  1749  204.261445
1            400  0.001247  1759  223.264890

*** Running simulation for nparticles=800 (2 of 2) on 5 replications...



        Replication 1 of 5...

        --> Running Fleming-Viot estimation...
        Running Fleming-Viot simulation using an ABSORPTION start state to estimate blocking probability
(seed=1717)...
Range of particle indices to simulate with start state #1 out of 10: [0, 22] (n=23, n/N=0.02875,
p=0.046630, diff=-0.4%, state=[3, 0, 0])
Range of particle indices to simulate with start state #2 out of 10: [23, 94] (n=72, n/N=0.09,
p=0.087432, diff=0.0%, state=[2, 1, 0])
Range of particle indices to simulate with start state #3 out of 10: [95, 114] (n=20, n/N=0.025,
p=0.040801, diff=-0.4%, state=[2, 0, 1])
Range of particle indices to simulate with start state #4 out of 10: [115, 255] (n=141, n/N=0.17625,
p=0.163934, diff=0.1%, state=[1, 2, 0])
Range of particle indices to simulate with start state #5 out of 10: [256, 311] (n=56, n/N=0.07,
p=0.076503, diff=-0.1%, state=[1, 1, 1])
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Range of particle indices to simulate with start state #6 out of 10: [312, 340] (n=29, n/N=0.03625,
p=0.035701, diff=0.0%, state=[1, 0, 2])
Range of particle indices to simulate with start state #7 out of 10: [341, 582] (n=242, n/N=0.3025,
p=0.307377, diff=-0.0%, state=[0, 3, 0])
Range of particle indices to simulate with start state #8 out of 10: [583, 712] (n=130, n/N=0.1625,
p=0.143443, diff=0.1%, state=[0, 2, 1])
Range of particle indices to simulate with start state #9 out of 10: [713, 777] (n=65, n/N=0.08125,
p=0.066940, diff=0.2%, state=[0, 1, 2])
Range of particle indices to simulate with start state #10 out of 10: [778, 799] (n=22, n/N=0.0275,
p=0.031239, diff=-0.1%, state=[0, 0, 3])
simulate: [reactivate=True] Generating trajectories for each particle until the first ACTIVATION after
the burn-in period takes place...
--> so that we can start the FV procedure.
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
--> Simulation time reset from T=714.3 to T=88.0.
Generating trajectories for each particle until END OF SIMULATION (T=88.0)...
Finalizing and identifying measurement times...
Estimating blocking probability with Fleming-Viot...
        --> Number of observations for P(T>t) estimation from FV simulation: 800 (N=800)
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)
execution time: 233.8 sec, 3.9 min
        --> Running Monte-Carlo estimation...
        Step 1 of 1: Estimating the blocking probability by Monte-Carlo (seed=1719)...
Range of particle indices to simulate with start state #8 out of 15: [0, 0] (n=1, n/N=1.0, p=0.069744,
diff=13.3%, state=[1, 2, 1])
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
Generating trajectories for each particle until END OF SIMULATION (max #events=249734)...
Finalizing and identifying measurement times...
P=0: Blocking time BEFORE removal: t=107.844, n=239
P=0: [<EventType.ABSORPTION: 0>] events at time 83398.2 removed.
P=0: Blocking time AFTER removal: t=107.844, n=239
Estimating blocking probability with Monte-Carlo...
        --> Number of observations for Pr(K) estimation: 29699 (14.6% of simulation time
T=571428.5714285715; 100.0% of max #events=249734)
execution time: 251.5 sec, 4.2 min
execution time MC + FV: 485.6 sec, 8.1 min
        P(K) by MC: 0.129312% (simulation time = 83398.2 out of max=571428.5714285715, #events 249734
out of 249734)
        P(K) estimated by FV: 0.108812%, E(T) = 4.9 (simulation time = 76455.6 out of
max=88.02377937803688, #events 249734 out of inf)
        True P(K): 0.124693%



        Replication 2 of 5...

        --> Running Fleming-Viot estimation...
        Running Fleming-Viot simulation using an ABSORPTION start state to estimate blocking probability
(seed=1727)...
Range of particle indices to simulate with start state #1 out of 10: [0, 38] (n=39, n/N=0.04875,
p=0.046630, diff=0.0%, state=[3, 0, 0])
Range of particle indices to simulate with start state #2 out of 10: [39, 102] (n=64, n/N=0.08,
p=0.087432, diff=-0.1%, state=[2, 1, 0])
Range of particle indices to simulate with start state #3 out of 10: [103, 146] (n=44, n/N=0.055,
p=0.040801, diff=0.3%, state=[2, 0, 1])
Range of particle indices to simulate with start state #4 out of 10: [147, 291] (n=145, n/N=0.18125,
p=0.163934, diff=0.1%, state=[1, 2, 0])
Range of particle indices to simulate with start state #5 out of 10: [292, 346] (n=55, n/N=0.06875,
p=0.076503, diff=-0.1%, state=[1, 1, 1])
Range of particle indices to simulate with start state #6 out of 10: [347, 372] (n=26, n/N=0.0325,
p=0.035701, diff=-0.1%, state=[1, 0, 2])
Range of particle indices to simulate with start state #7 out of 10: [373, 609] (n=237, n/N=0.29625,
p=0.307377, diff=-0.0%, state=[0, 3, 0])
Range of particle indices to simulate with start state #8 out of 10: [610, 738] (n=129, n/N=0.16125,
```
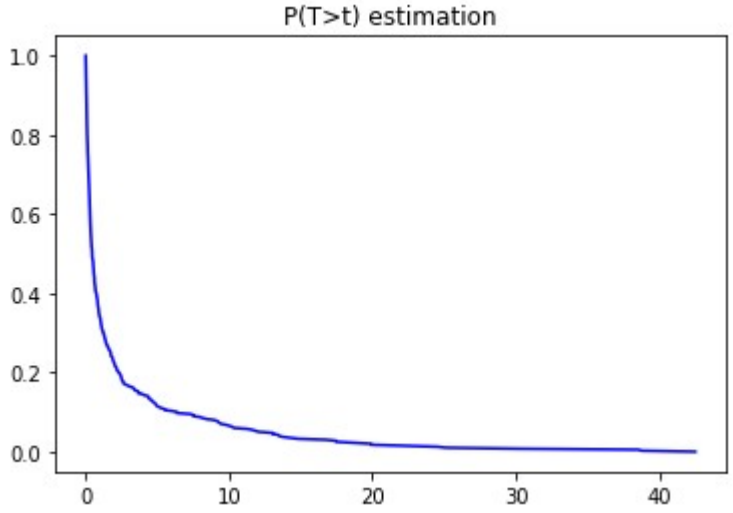

```
p=0.143443, diff=0.1%, state=[0, 2, 1])
Range of particle indices to simulate with start state #9 out of 10: [739, 778] (n=40, n/N=0.05,
p=0.066940, diff=-0.3%, state=[0, 1, 2])
Range of particle indices to simulate with start state #10 out of 10: [779, 799] (n=21, n/N=0.02625,
p=0.031239, diff=-0.2%, state=[0, 0, 3])
simulate: [reactivate=True] Generating trajectories for each particle until the first ACTIVATION after
the burn-in period takes place...
--> so that we can start the FV procedure.
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
--> Simulation time reset from T=714.3 to T=89.1.
Generating trajectories for each particle until END OF SIMULATION (T=89.1)...
Finalizing and identifying measurement times...
Estimating blocking probability with Fleming-Viot...
        --> Number of observations for P(T>t) estimation from FV simulation: 800 (N=800)
execution time: 200.0 sec, 3.3 min
        --> Running Monte-Carlo estimation...
        Step 1 of 1: Estimating the blocking probability by Monte-Carlo (seed=1729)...
Range of particle indices to simulate with start state #6 out of 15: [0, 0] (n=1, n/N=1.0, p=0.017358,
diff=56.6%, state=[2, 0, 2])
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
Generating trajectories for each particle until END OF SIMULATION (max #events=252845)...
Finalizing and identifying measurement times...
P=0: Blocking time BEFORE removal: t=64.389, n=150
P=0: Blocking time AFTER removal: t=64.389, n=150
Estimating blocking probability with Monte-Carlo...
        --> Number of observations for Pr(K) estimation: 31341 (14.8% of simulation time
T=571428.5714285715; 100.0% of max #events=252845)
execution time: 236.4 sec, 3.9 min
execution time MC + FV: 436.7 sec, 7.3 min
        P(K) by MC: 0.076223% (simulation time = 84474.0 out of max=571428.5714285715, #events 252845
out of 252845)
        P(K) estimated by FV: 0.062860%, E(T) = 4.9 (simulation time = 76988.6 out of
max=89.06961133974269, #events 252845 out of inf)
        True P(K): 0.124693%



        Replication 3 of 5...

        --> Running Fleming-Viot estimation...
        Running Fleming-Viot simulation using an ABSORPTION start state to estimate blocking probability
(seed=1737)...
Range of particle indices to simulate with start state #1 out of 10: [0, 28] (n=29, n/N=0.03625,
p=0.046630, diff=-0.2%, state=[3, 0, 0])
Range of particle indices to simulate with start state #2 out of 10: [29, 92] (n=64, n/N=0.08,
p=0.087432, diff=-0.1%, state=[2, 1, 0])
Range of particle indices to simulate with start state #3 out of 10: [93, 122] (n=30, n/N=0.0375,
p=0.040801, diff=-0.1%, state=[2, 0, 1])
Range of particle indices to simulate with start state #4 out of 10: [123, 262] (n=140, n/N=0.175,
p=0.163934, diff=0.1%, state=[1, 2, 0])
Range of particle indices to simulate with start state #5 out of 10: [263, 325] (n=63, n/N=0.07875,
p=0.076503, diff=0.0%, state=[1, 1, 1])
Range of particle indices to simulate with start state #6 out of 10: [326, 354] (n=29, n/N=0.03625,
p=0.035701, diff=0.0%, state=[1, 0, 2])
Range of particle indices to simulate with start state #7 out of 10: [355, 613] (n=259, n/N=0.32375,
p=0.307377, diff=0.1%, state=[0, 3, 0])
Range of particle indices to simulate with start state #8 out of 10: [614, 739] (n=126, n/N=0.1575,
p=0.143443, diff=0.1%, state=[0, 2, 1])
Range of particle indices to simulate with start state #9 out of 10: [740, 777] (n=38, n/N=0.0475,
p=0.066940, diff=-0.3%, state=[0, 1, 2])
Range of particle indices to simulate with start state #10 out of 10: [778, 799] (n=22, n/N=0.0275,
p=0.031239, diff=-0.1%, state=[0, 0, 3])
simulate: [reactivate=True] Generating trajectories for each particle until the first ACTIVATION after
the burn-in period takes place...
--> so that we can start the FV procedure.
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
```

```
--> Simulation time reset from T=714.3 to T=96.8.
Generating trajectories for each particle until END OF SIMULATION (T=96.8)...
Finalizing and identifying measurement times...
Estimating blocking probability with Fleming-Viot...
        --> Number of observations for P(T>t) estimation from FV simulation: 800 (N=800)
execution time: 211.1 sec, 3.5 min
        --> Running Monte-Carlo estimation...
        Step 1 of 1: Estimating the blocking probability by Monte-Carlo (seed=1739)...
Range of particle indices to simulate with start state #11 out of 15: [0, 0] (n=1, n/N=1.0, p=0.280221,
diff=2.6%, state=[0, 4, 0])
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
Generating trajectories for each particle until END OF SIMULATION (max #events=272856)...
Finalizing and identifying measurement times...
P=0: Blocking time BEFORE removal: t=190.326, n=389
P=0: [<EventType.ABSORPTION: 0>] events at time 90938.9 removed.
P=0: Blocking time AFTER removal: t=190.326, n=389
Estimating blocking probability with Monte-Carlo...
        --> Number of observations for Pr(K) estimation: 32879 (15.9% of simulation time
T=571428.5714285715; 100.0% of max #events=272856)
execution time: 242.0 sec, 4.0 min
execution time MC + FV: 453.4 sec, 7.6 min
        P(K) by MC: 0.209290% (simulation time = 90938.8 out of max=571428.5714285715, #events 272856
out of 272856)
        P(K) estimated by FV: 0.118850%, E(T) = 4.7 (simulation time = 83191.6 out of
max=96.81684792152846, #events 272856 out of inf)
        True P(K): 0.124693%



        Replication 4 of 5...

        --> Running Fleming-Viot estimation...
        Running Fleming-Viot simulation using an ABSORPTION start state to estimate blocking probability
(seed=1747)...
Range of particle indices to simulate with start state #1 out of 10: [0, 35] (n=36, n/N=0.045,
p=0.046630, diff=-0.0%, state=[3, 0, 0])
Range of particle indices to simulate with start state #2 out of 10: [36, 98] (n=63, n/N=0.07875,
p=0.087432, diff=-0.1%, state=[2, 1, 0])
Range of particle indices to simulate with start state #3 out of 10: [99, 130] (n=32, n/N=0.04,
p=0.040801, diff=-0.0%, state=[2, 0, 1])
Range of particle indices to simulate with start state #4 out of 10: [131, 276] (n=146, n/N=0.1825,
p=0.163934, diff=0.1%, state=[1, 2, 0])
Range of particle indices to simulate with start state #5 out of 10: [277, 355] (n=79, n/N=0.09875,
p=0.076503, diff=0.3%, state=[1, 1, 1])
Range of particle indices to simulate with start state #6 out of 10: [356, 388] (n=33, n/N=0.04125,
p=0.035701, diff=0.2%, state=[1, 0, 2])
Range of particle indices to simulate with start state #7 out of 10: [389, 620] (n=232, n/N=0.29,
p=0.307377, diff=-0.1%, state=[0, 3, 0])
Range of particle indices to simulate with start state #8 out of 10: [621, 723] (n=103, n/N=0.12875,
p=0.143443, diff=-0.1%, state=[0, 2, 1])
Range of particle indices to simulate with start state #9 out of 10: [724, 777] (n=54, n/N=0.0675,
p=0.066940, diff=0.0%, state=[0, 1, 2])
Range of particle indices to simulate with start state #10 out of 10: [778, 799] (n=22, n/N=0.0275,
p=0.031239, diff=-0.1%, state=[0, 0, 3])
simulate: [reactivate=True] Generating trajectories for each particle until the first ACTIVATION after
the burn-in period takes place...
--> so that we can start the FV procedure.
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
--> Simulation time reset from T=714.3 to T=116.0.
Generating trajectories for each particle until END OF SIMULATION (T=116.0)...
Finalizing and identifying measurement times...
Estimating blocking probability with Fleming-Viot...
        --> Number of observations for P(T>t) estimation from FV simulation: 800 (N=800)
execution time: 241.9 sec, 4.0 min
        --> Running Monte-Carlo estimation...
        Step 1 of 1: Estimating the blocking probability by Monte-Carlo (seed=1749)...
Range of particle indices to simulate with start state #11 out of 15: [0, 0] (n=1, n/N=1.0, p=0.280221,
diff=2.6%, state=[0, 4, 0])
```

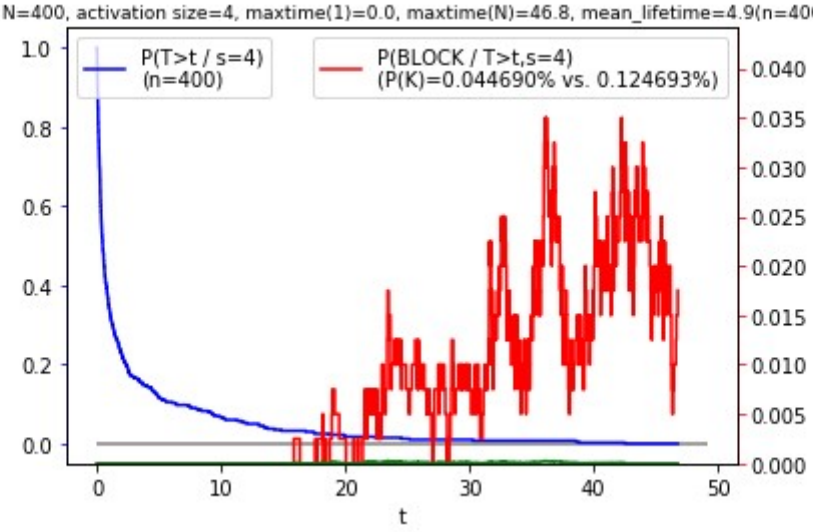
```
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
Generating trajectories for each particle until END OF SIMULATION (max #events=321571)...
Finalizing and identifying measurement times...
Estimating blocking probability with Monte-Carlo...
        --> Number of observations for Pr(K) estimation: 39200 (18.7% of simulation time
T=571428.5714285715; 100.0% of max #events=321571)
execution time: 294.7 sec, 4.9 min
execution time MC + FV: 537.0 sec, 8.9 min
        P(K) by MC: 0.171063% (simulation time = 107111.0 out of max=571428.5714285715, #events 321571
out of 321571)
        P(K) estimated by FV: 0.130179%, E(T) = 4.8 (simulation time = 98353.3 out of
max=115.99786279613441, #events 321571 out of inf)
        True P(K): 0.124693%



        Replication 5 of 5...

        --> Running Fleming-Viot estimation...
        Running Fleming-Viot simulation using an ABSORPTION start state to estimate blocking probability
(seed=1757)...
Range of particle indices to simulate with start state #1 out of 10: [0, 38] (n=39, n/N=0.04875,
p=0.046630, diff=0.0%, state=[3, 0, 0])
Range of particle indices to simulate with start state #2 out of 10: [39, 113] (n=75, n/N=0.09375,
p=0.087432, diff=0.1%, state=[2, 1, 0])
Range of particle indices to simulate with start state #3 out of 10: [114, 141] (n=28, n/N=0.035,
p=0.040801, diff=-0.1%, state=[2, 0, 1])
Range of particle indices to simulate with start state #4 out of 10: [142, 281] (n=140, n/N=0.175,
p=0.163934, diff=0.1%, state=[1, 2, 0])
Range of particle indices to simulate with start state #5 out of 10: [282, 336] (n=55, n/N=0.06875,
p=0.076503, diff=-0.1%, state=[1, 1, 1])
Range of particle indices to simulate with start state #6 out of 10: [337, 362] (n=26, n/N=0.0325,
p=0.035701, diff=-0.1%, state=[1, 0, 2])
Range of particle indices to simulate with start state #7 out of 10: [363, 597] (n=235, n/N=0.29375,
p=0.307377, diff=-0.0%, state=[0, 3, 0])
Range of particle indices to simulate with start state #8 out of 10: [598, 723] (n=126, n/N=0.1575,
p=0.143443, diff=0.1%, state=[0, 2, 1])
Range of particle indices to simulate with start state #9 out of 10: [724, 765] (n=42, n/N=0.0525,
p=0.066940, diff=-0.2%, state=[0, 1, 2])
Range of particle indices to simulate with start state #10 out of 10: [766, 799] (n=34, n/N=0.0425,
p=0.031239, diff=0.4%, state=[0, 0, 3])
simulate: [reactivate=True] Generating trajectories for each particle until the first ACTIVATION after
the burn-in period takes place...
--> so that we can start the FV procedure.
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
--> Simulation time reset from T=714.3 to T=137.1.
Generating trajectories for each particle until END OF SIMULATION (T=137.1)...
Finalizing and identifying measurement times...
Estimating blocking probability with Fleming-Viot...
        --> Number of observations for P(T>t) estimation from FV simulation: 800 (N=800)
execution time: 287.8 sec, 4.8 min
        --> Running Monte-Carlo estimation...
        Step 1 of 1: Estimating the blocking probability by Monte-Carlo (seed=1759)...
Range of particle indices to simulate with start state #11 out of 15: [0, 0] (n=1, n/N=1.0, p=0.280221,
diff=2.6%, state=[0, 4, 0])
simulate: Generating trajectories for each particle until first absorption...
--> so that we can sort ALL the first absorption times of particles and start reactivating when
reactivate=True.
Generating trajectories for each particle until END OF SIMULATION (max #events=376849)...
Finalizing and identifying measurement times...
P=0: Blocking time BEFORE removal: t=119.221, n=236
P=0: Blocking time AFTER removal: t=119.221, n=236
Estimating blocking probability with Monte-Carlo...
        --> Number of observations for Pr(K) estimation: 45936 (22.0% of simulation time
T=571428.5714285715; 100.0% of max #events=376849)
execution time: 380.0 sec, 6.3 min
execution time MC + FV: 668.2 sec, 11.1 min
        P(K) by MC: 0.094756% (simulation time = 125818.2 out of max=571428.5714285715, #events 376849
```

```
out of 376849)
        P(K) estimated by FV: 0.206729%, E(T) = 5.7 (simulation time = 115525.5 out of
max=137.12437895492005, #events 376849 out of inf)
        True P(K): 0.124693%
Results:
    K BSA    N burnin_cycles replication    Pr(MC)       Time(MC) #Events(MC)  \
1  20   4  400             1           1  0.001203   23456.823596       70495
1  20   4  400             1           2  0.000609   23684.878511       70655
1  20   4  400             1           3  0.001802   33940.855527      101344
1  20   4  400             1           4  0.001223   36649.385467      110472
1  20   4  400             1           5  0.001042   37531.908916      112539
2  20   4  800             1           1  0.001293   83398.150598      249734
2  20   4  800             1           2  0.000762   84473.969891      252845
2  20   4  800             1           3  0.002093   90938.761743      272856
2  20   4  800             1           4  0.001711  107110.966339      321571
2  20   4  800             1           5  0.000948  125818.176462      376849

  #Cycles(MC)      E(T) #Cycles(E(T))    Pr(FV)       Time(FV) #Events(FV)  \
1        8590  4.923781           400  0.000447   21552.382244       70495
1        8700  4.514685           400  0.000504   21508.305520       70655
1       11996  4.816041           400  0.000579   30934.868832      101344
1       13177  4.667617           400  0.000673   33784.833785      110472
1       14060  5.302102           400  0.000875   34243.287079      112539
2       29699  4.877494           800  0.001088   76455.607879      249734
2       31341  4.876530           800  0.000629   76988.633964      252845
2       32879  4.718772           800  0.001188   83191.582384      272856
2       39200  4.793051           800  0.001302   98353.312250      321571
2       45936  5.745272           800  0.002067  115525.538157      376849

  #Samples(S(t))     Pr(K)  seed   exec_time
1            400  0.001247  1719  108.414296
1            400  0.001247  1729  121.906596
1            400  0.001247  1739  173.461076
1            400  0.001247  1749  204.261445
1            400  0.001247  1759  223.264890
2            800  0.001247  1719  485.551425
2            800  0.001247  1729  436.731062
2            800  0.001247  1739  453.422276
2            800  0.001247  1749  536.970087
2            800  0.001247  1759  668.235494
Total execution time: 56.9 min
Simulation results for #servers=3, K=20, rhos=[0.4, 0.75, 0.35], (400<=N<=1200), T<=137.12437895492005,
#Events<=inf, Rep=5
Raw results by N:
    K BSA    N burnin_cycles replication    Pr(MC)       Time(MC) #Events(MC)  \
1  20   4  400             1           1  0.001203   23456.823596       70495
1  20   4  400             1           2  0.000609   23684.878511       70655
1  20   4  400             1           3  0.001802   33940.855527      101344
1  20   4  400             1           4  0.001223   36649.385467      110472
1  20   4  400             1           5  0.001042   37531.908916      112539
2  20   4  800             1           1  0.001293   83398.150598      249734
2  20   4  800             1           2  0.000762   84473.969891      252845
2  20   4  800             1           3  0.002093   90938.761743      272856
2  20   4  800             1           4  0.001711  107110.966339      321571
2  20   4  800             1           5  0.000948  125818.176462      376849

  #Cycles(MC)      E(T) #Cycles(E(T))    Pr(FV)       Time(FV) #Events(FV)  \
1        8590  4.923781           400  0.000447   21552.382244       70495
1        8700  4.514685           400  0.000504   21508.305520       70655
1       11996  4.816041           400  0.000579   30934.868832      101344
1       13177  4.667617           400  0.000673   33784.833785      110472
1       14060  5.302102           400  0.000875   34243.287079      112539
2       29699  4.877494           800  0.001088   76455.607879      249734
2       31341  4.876530           800  0.000629   76988.633964      252845
2       32879  4.718772           800  0.001188   83191.582384      272856
2       39200  4.793051           800  0.001302   98353.312250      321571
2       45936  5.745272           800  0.002067  115525.538157      376849

  #Samples(S(t))     Pr(K)  seed   exec_time
1            400  0.001247  1719  108.414296
1            400  0.001247  1729  121.906596
1            400  0.001247  1739  173.461076
1            400  0.001247  1749  204.261445
```

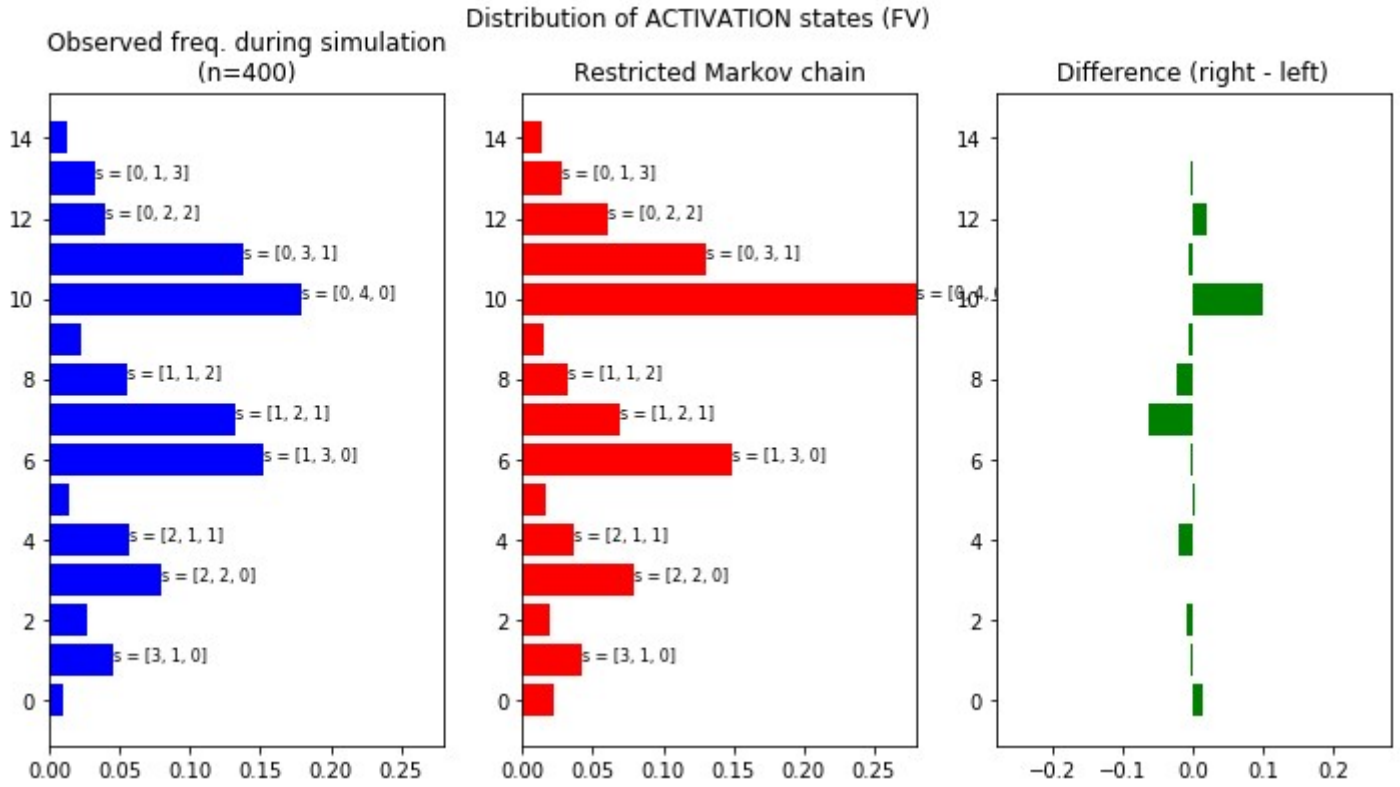
```
1            400  0.001247  1759  223.264890
2            800  0.001247  1719  485.551425
2            800  0.001247  1729  436.731062
2            800  0.001247  1739  453.422276
2            800  0.001247  1749  536.970087
2            800  0.001247  1759  668.235494
Aggregated results by N:
    #Events(MC)                                                        \
          count      mean           std       min       max            SE
N
400           5   93101.0  20990.406654   70495.0  112539.0   9387.195231
800           5  294771.0  54132.767697  249734.0  376849.0  24208.909676

    #Cycles(MC)                                    ...      #Events(FV)  \
          count     mean          std      min     ...              std
N                                                  ...
400           5  11304.6  2536.194945   8590.0    ...     20990.406654
800           5  35811.0  6706.992881  29699.0    ...     54132.767697

                                    Pr(FV)                                \
          min       max            SE  count      mean       std       min
N
400   70495.0  112539.0   9387.195231      5  0.000616  0.000168  0.000447
800  249734.0  376849.0  24208.909676      5  0.001255  0.000521  0.000629


          max        SE
N
400  0.000875  0.000075
800  0.002067  0.000233

[2 rows x 30 columns]
Results of simulation saved to E:\Daniel\Projects\PhD-RL-Toulouse\projects\Python\test
Aggregated results of simulation saved to E:\Daniel\Projects\PhD-RL-Toulouse\projects\Python\test
```

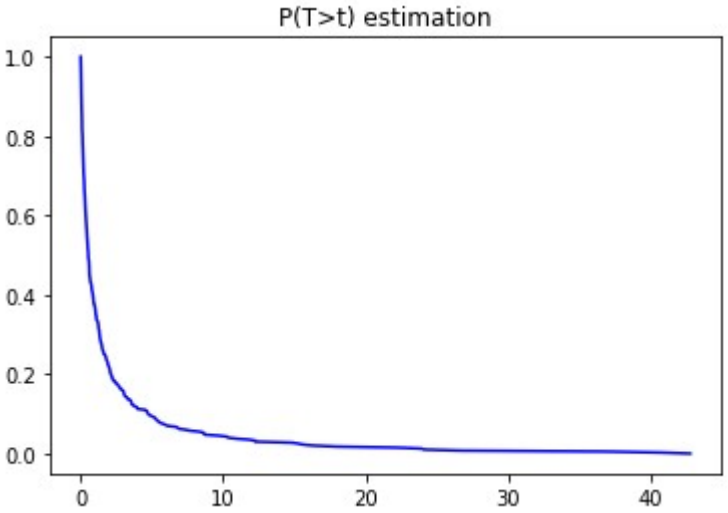


K=20, rhos=[0.4, 0.75, 0.35], N=400, activation size=4, maxtime(1)=0.0, maxtime(N)=46.8, mean_lifetime=4.9(n=400), finalize=ABS, seed=1717

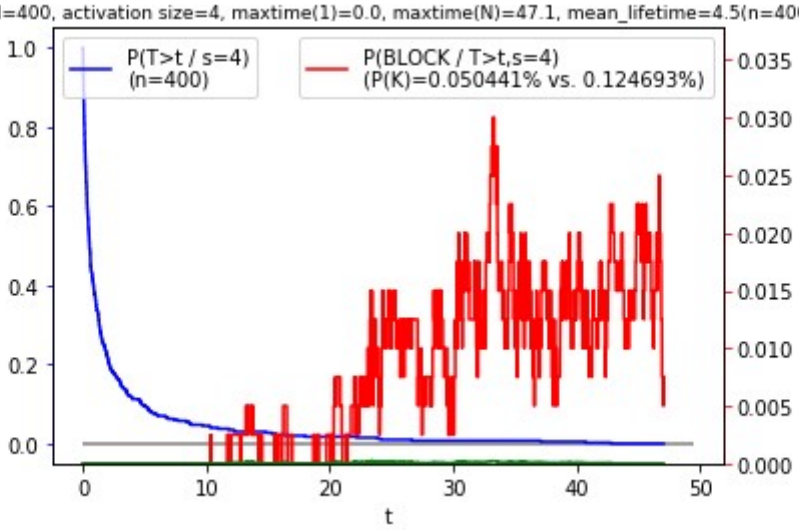


<matplotlib.figure.Figure at 0x25032c650f0>

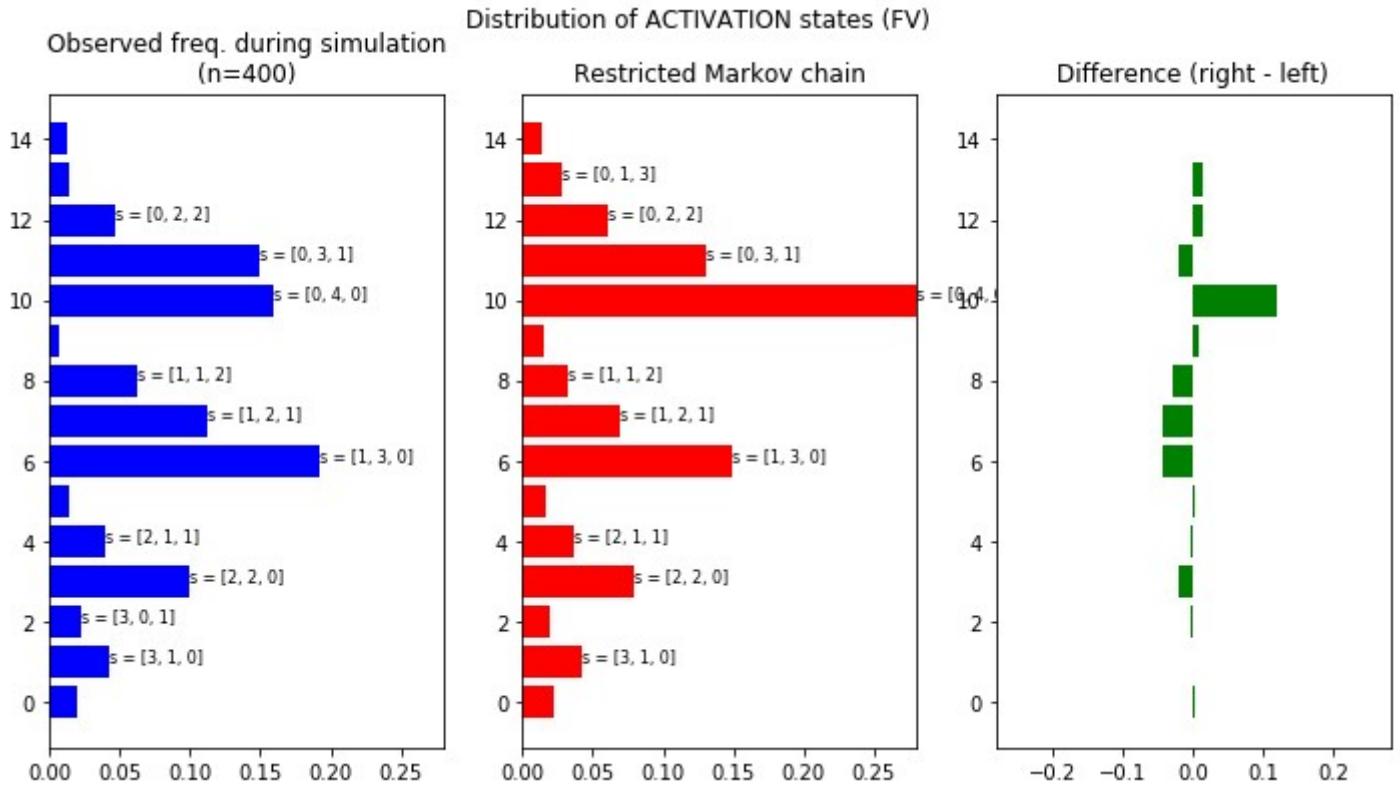


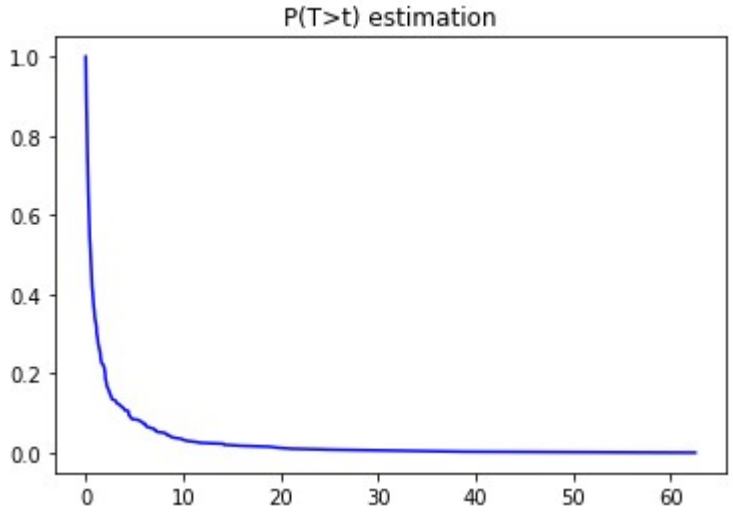


K=20, rhos=[0.4, 0.75, 0.35], N=400, activation size=4, maxtime(1)=0.0, maxtime(N)=47.1, mean_lifetime=4.5(n=400), finalize=ABS, seed=1727

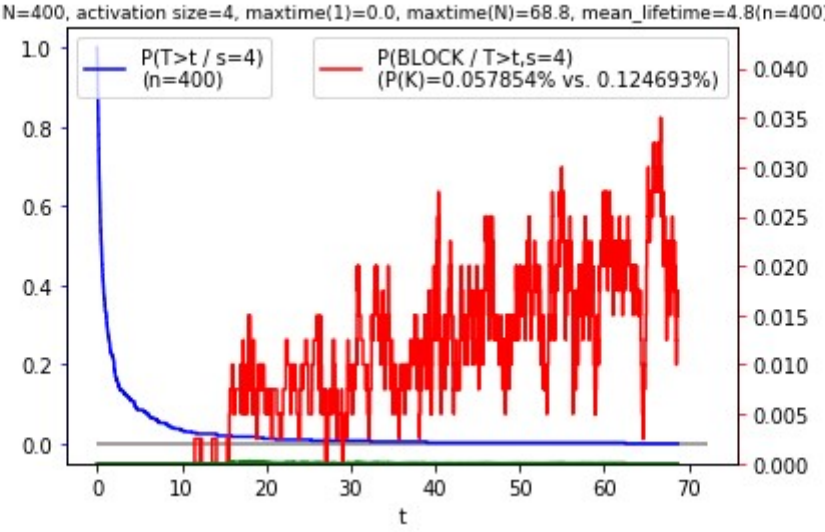


<matplotlib.figure.Figure at 0x25034a81320>

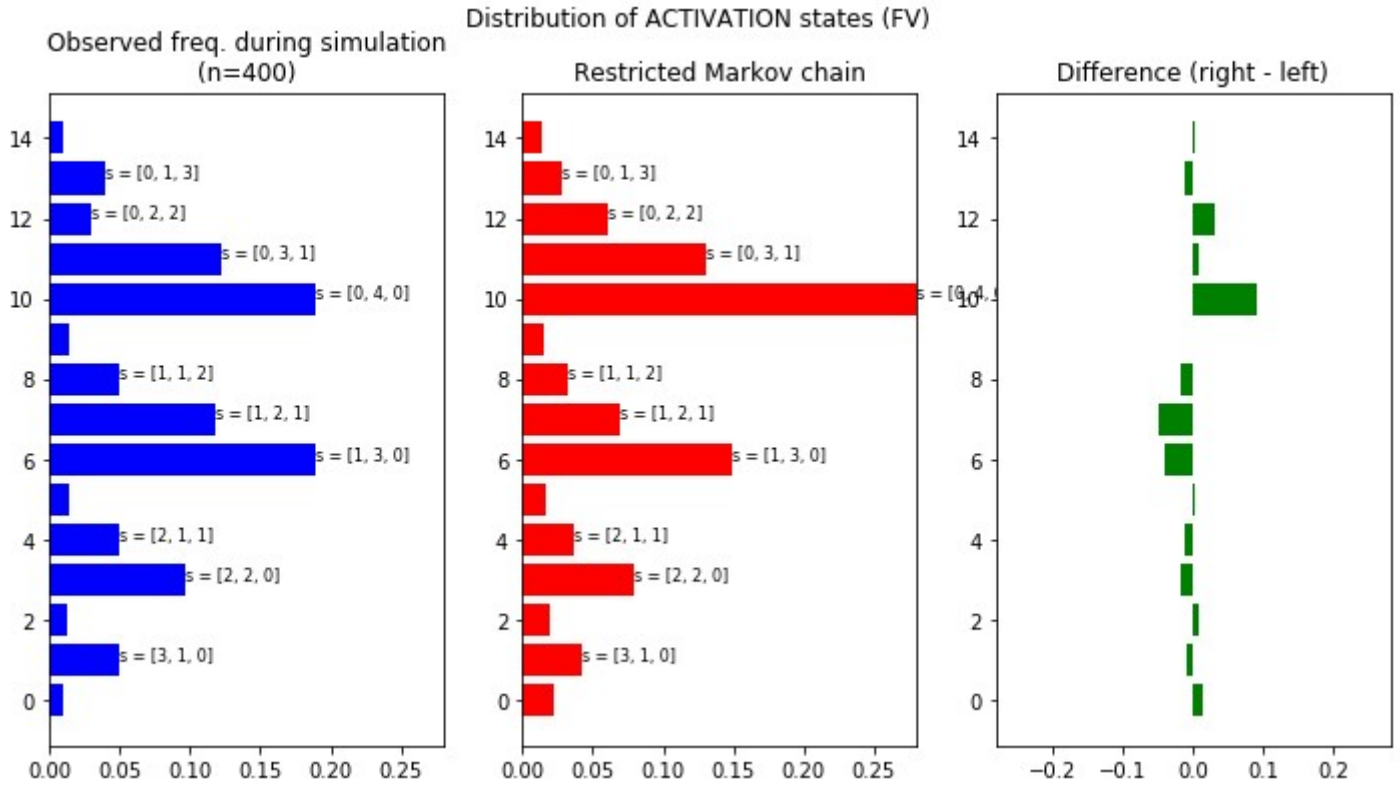

Distribution of ACTIVATION states (FV)
Observed freq. during simulation
(n=400)
Restricted Markov chain
Difference (right - left)
s = [0, 2, 2]
s = [0, 3, 1]
s = [0, 4, 0]
s = [1, 1, 2]
s = [1, 2, 1]
s = [1, 3, 0]
s = [2, 1, 1]
s = [2, 2, 0]
s = [3, 0, 1]
s = [3, 1, 0]
s = [0, 1, 3]

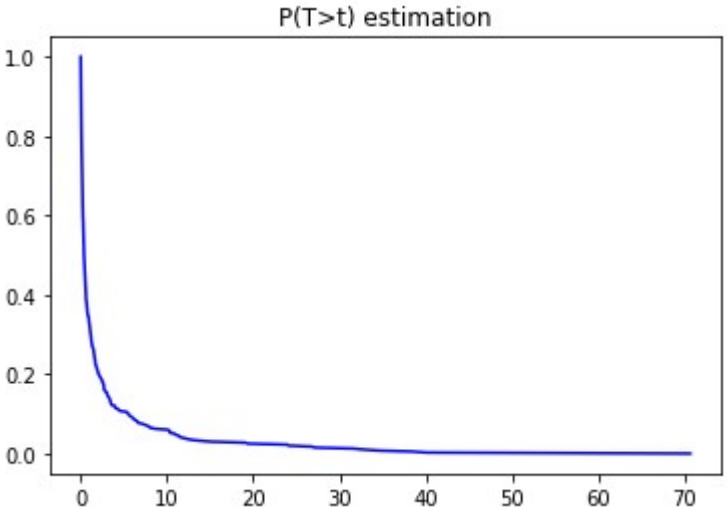

P(T>t) estimation

K=20, rhos=[0.4, 0.75, 0.35], N=400, activation size=4, maxtime(1)=0.0, maxtime(N)=68.8, mean_lifetime=4.8(n=400), finalize=ABS, seed=1737

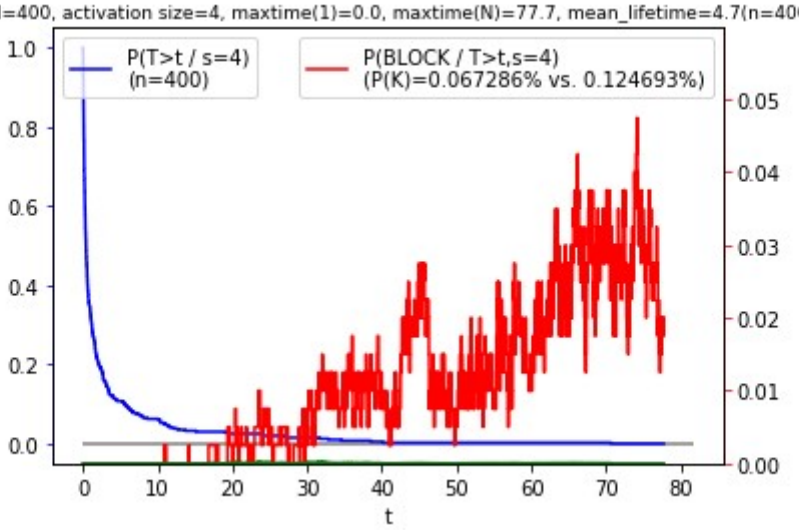


<matplotlib.figure.Figure at 0x250361271d0>

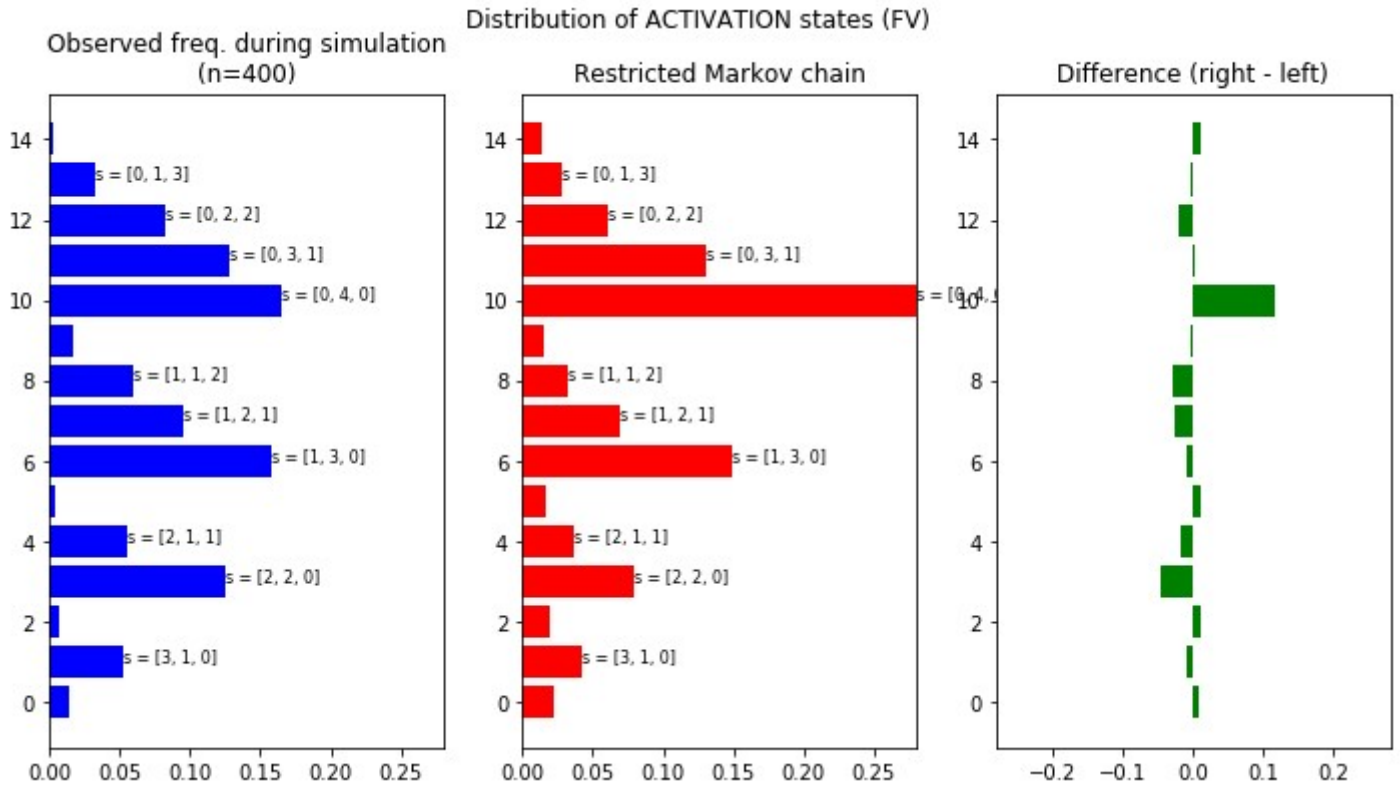


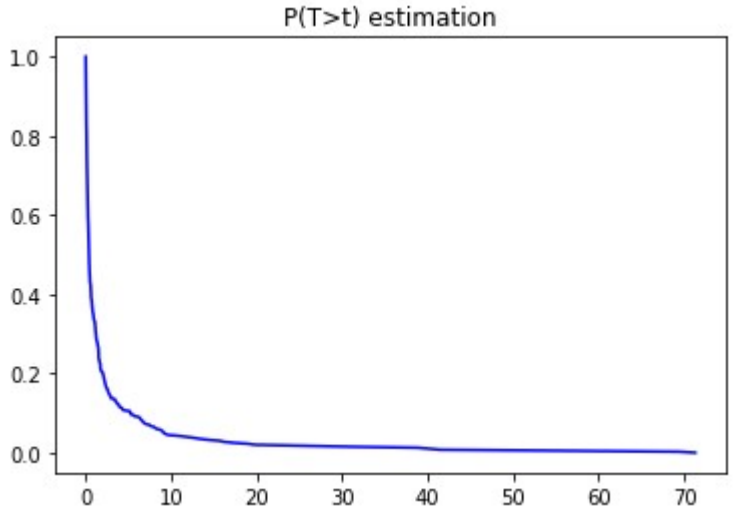


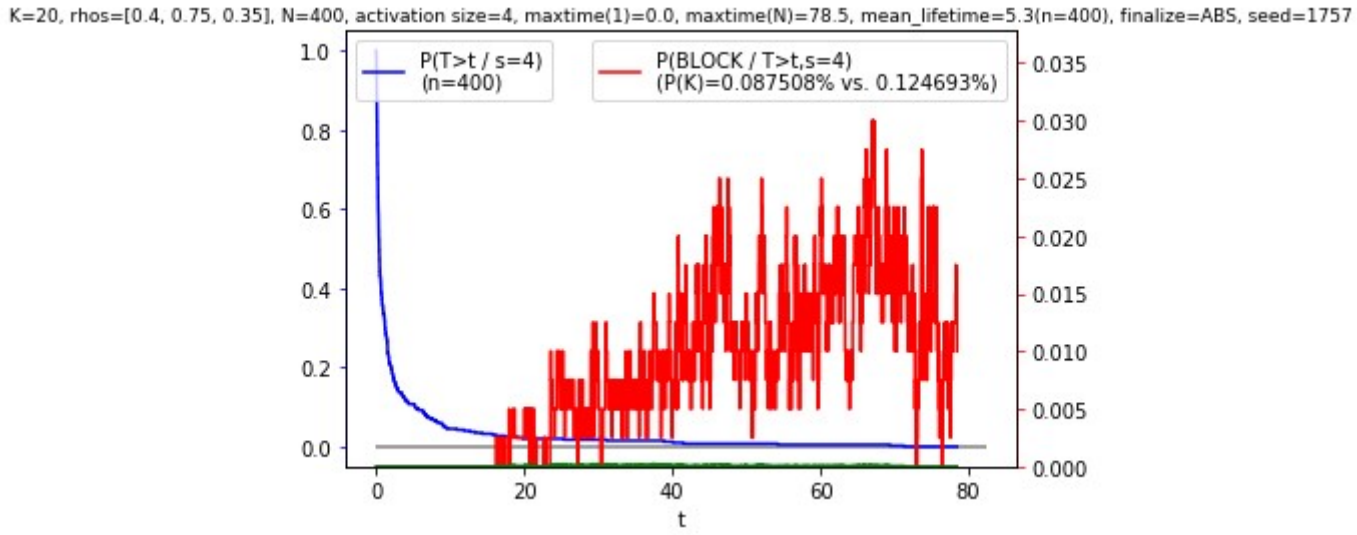
K=20, rhos=[0.4, 0.75, 0.35], N=400, activation size=4, maxtime(1)=0.0, maxtime(N)=77.7, mean_lifetime=4.7(n=400), finalize=ABS, seed=1747



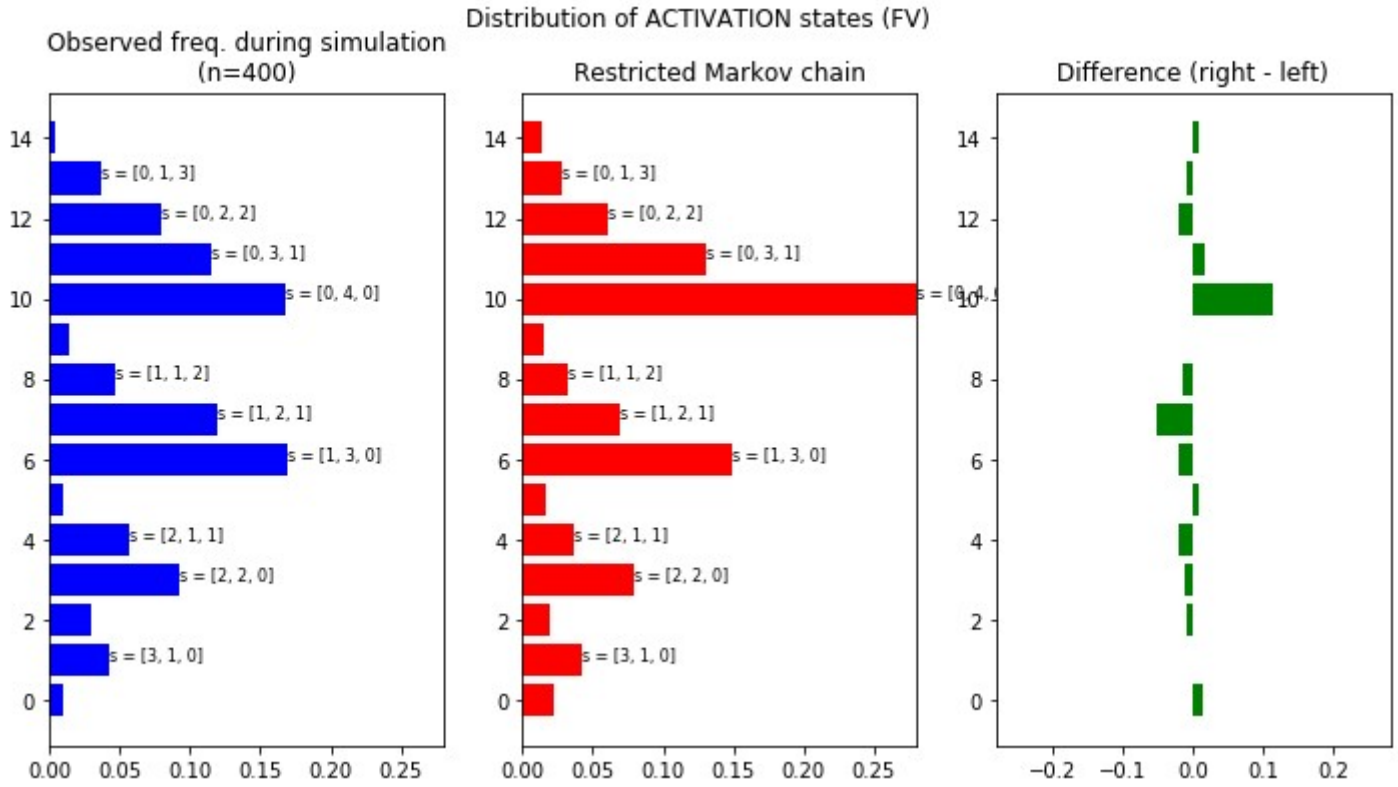
<matplotlib.figure.Figure at 0x25036f161d0>

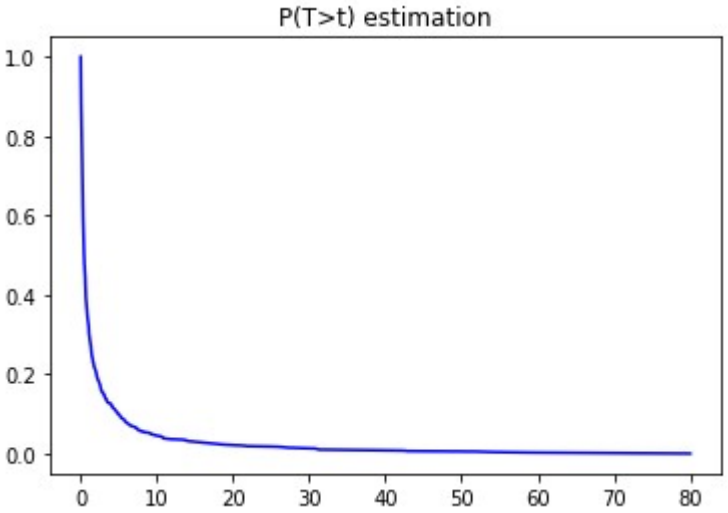

Distribution of ACTIVATION states (FV)
Observed freq. during simulation
(n=400)
Restricted Markov chain
Difference (right - left)
s = [0, 1, 3]
s = [0, 2, 2]
s = [0, 3, 1]
s = [0, 4, 0]
s = [1, 1, 2]
s = [1, 2, 1]
s = [1, 3, 0]
s = [2, 1, 1]
s = [2, 2, 0]
s = [3, 1, 0]


P(T>t) estimation

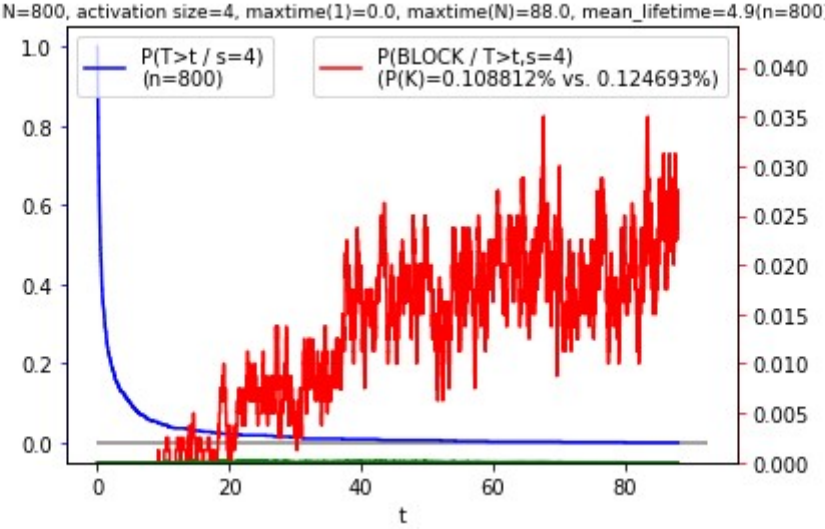


<matplotlib.figure.Figure at 0x25038476b00>

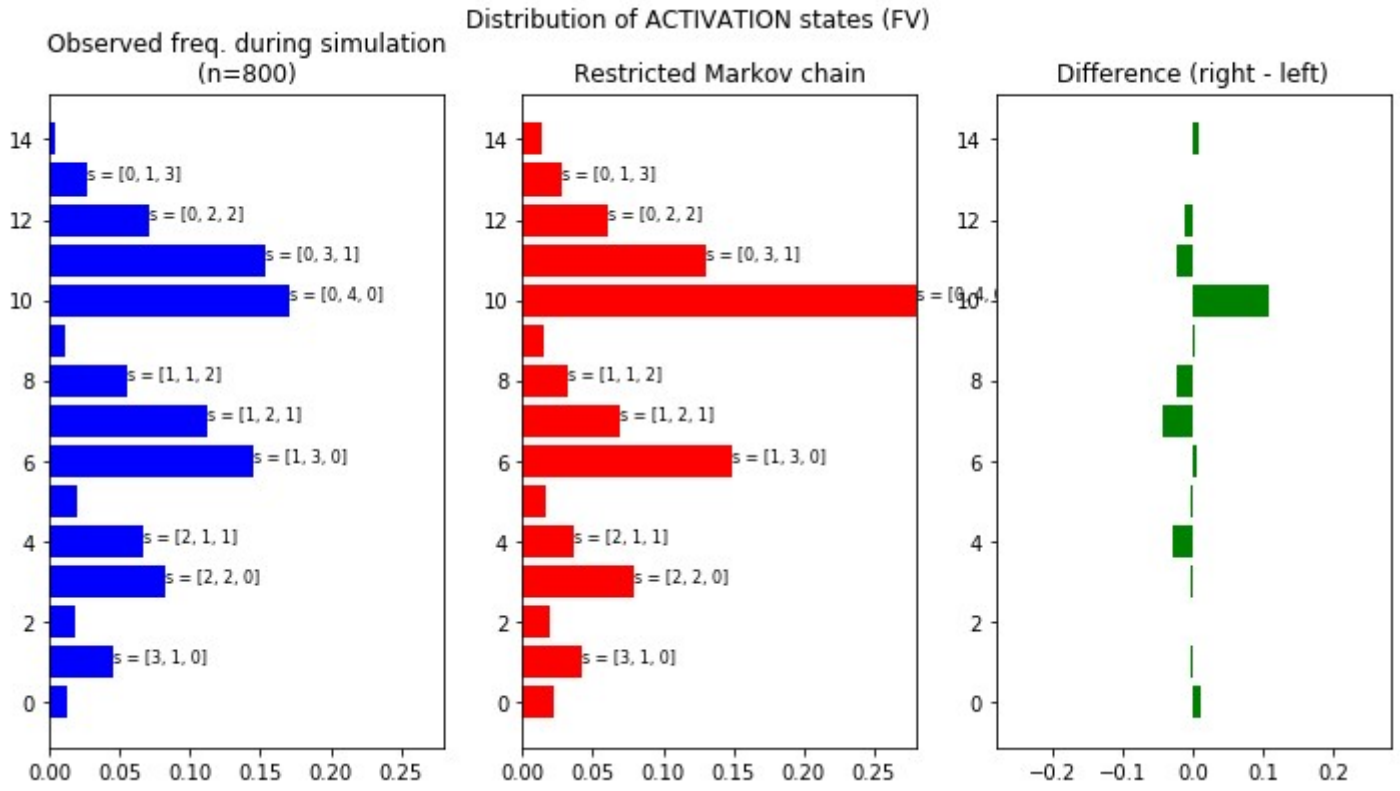


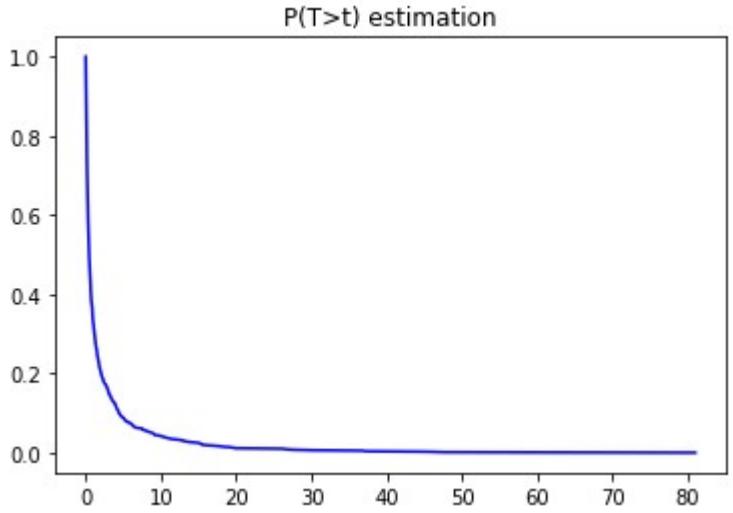


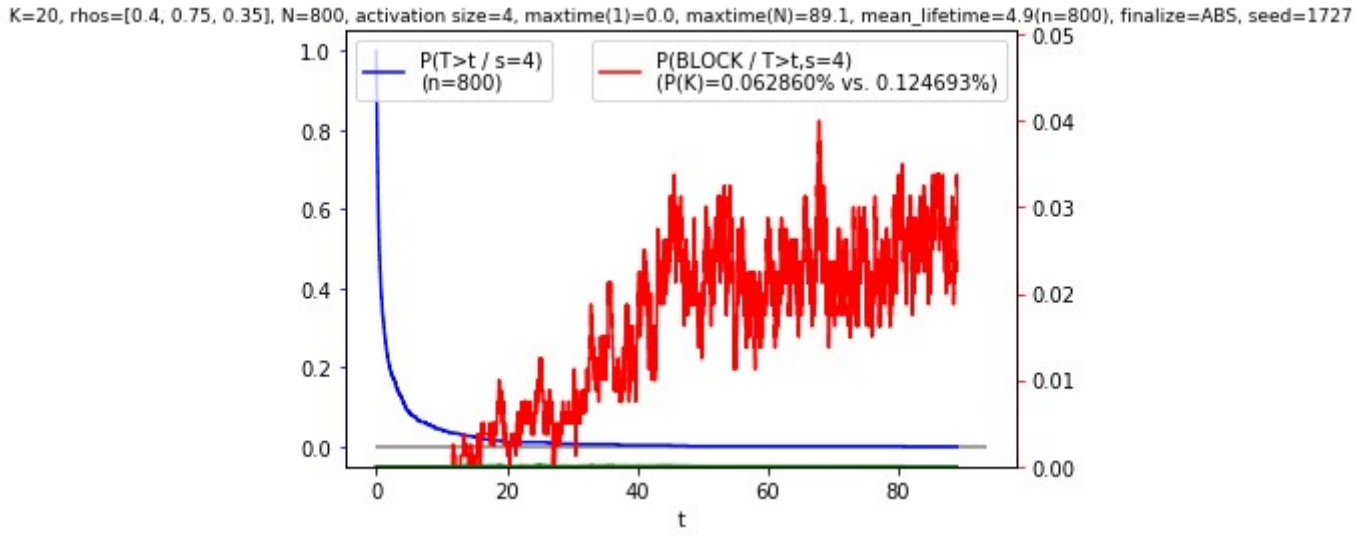
K=20, rhos=[0.4, 0.75, 0.35], N=800, activation size=4, maxtime(1)=0.0, maxtime(N)=88.0, mean_lifetime=4.9(n=800), finalize=ABS, seed=1717



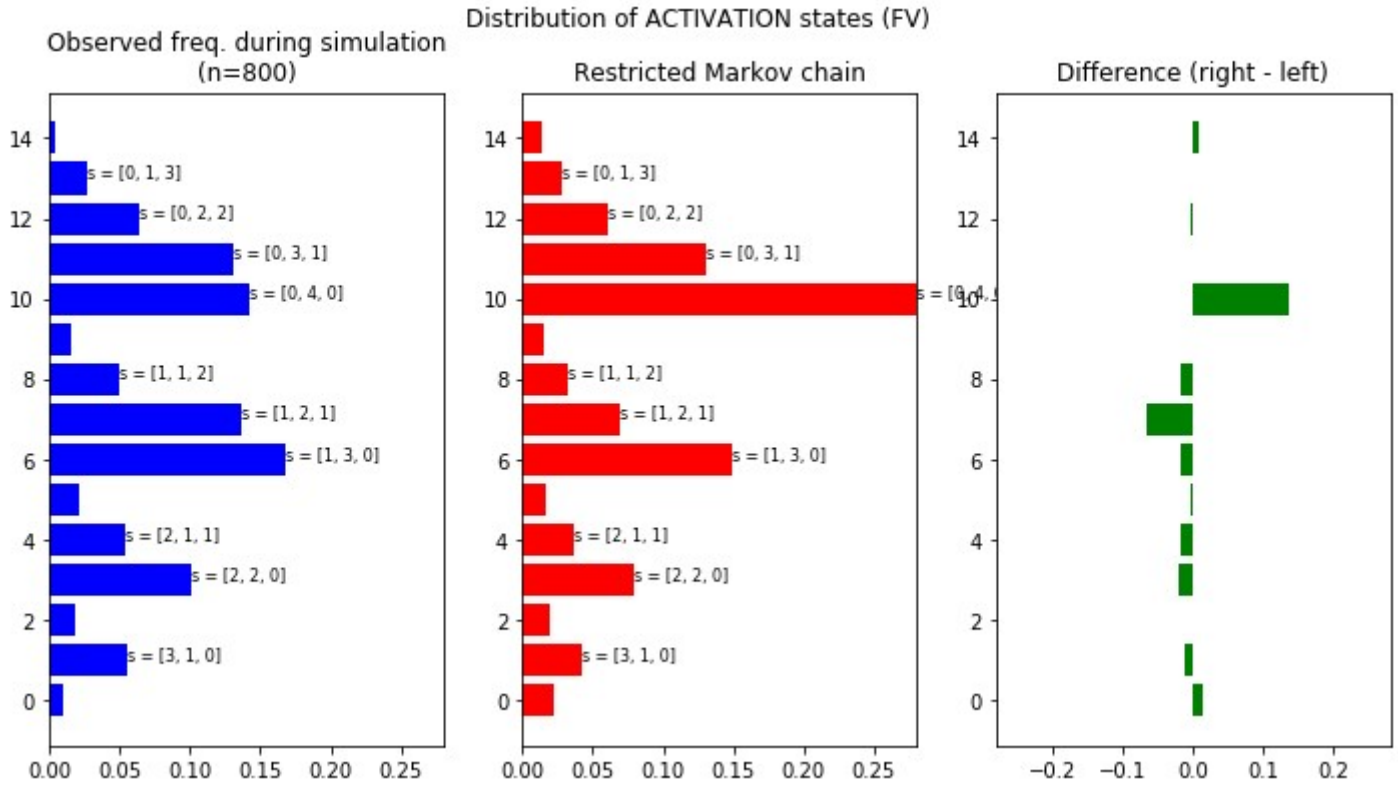
<matplotlib.figure.Figure at 0x2503a13a0f0>

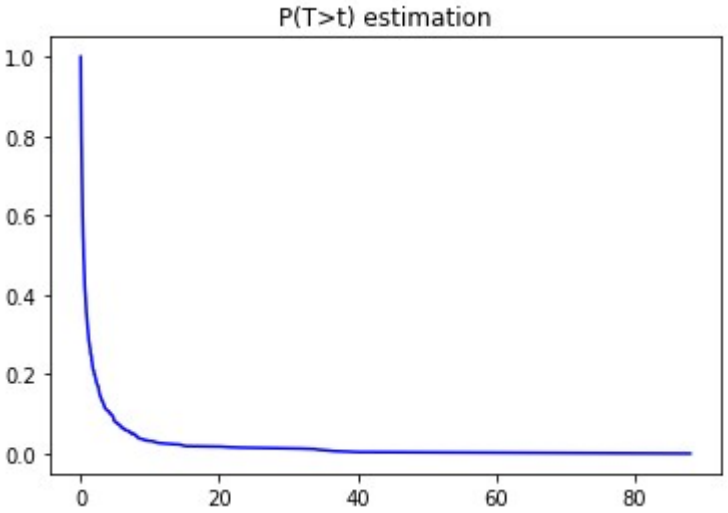

Distribution of ACTIVATION states (FV)
Observed freq. during simulation
(n=800)
Restricted Markov chain
Difference (right - left)
s = [0, 1, 3]
s = [0, 2, 2]
s = [0, 3, 1]
s = [0, 4, 0]
s = [1, 1, 2]
s = [1, 2, 1]
s = [1, 3, 0]
s = [2, 1, 1]
s = [2, 2, 0]
s = [3, 1, 0]


P(T>t) estimation

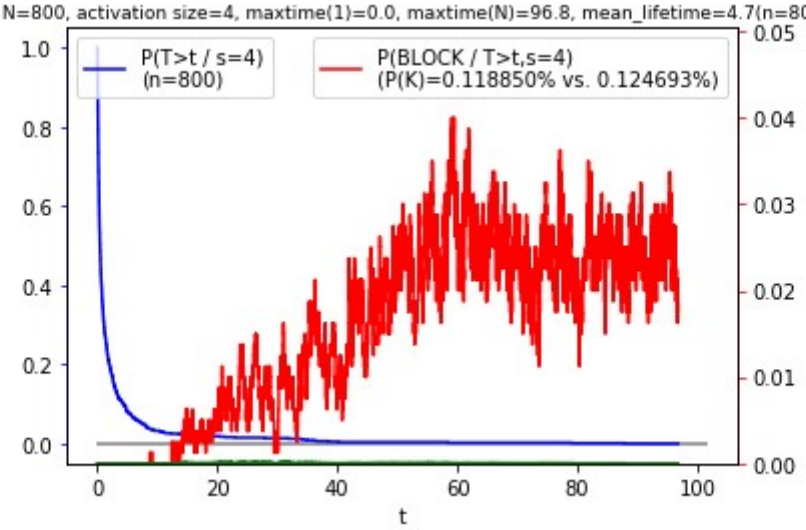


<matplotlib.figure.Figure at 0x2503f21f400>

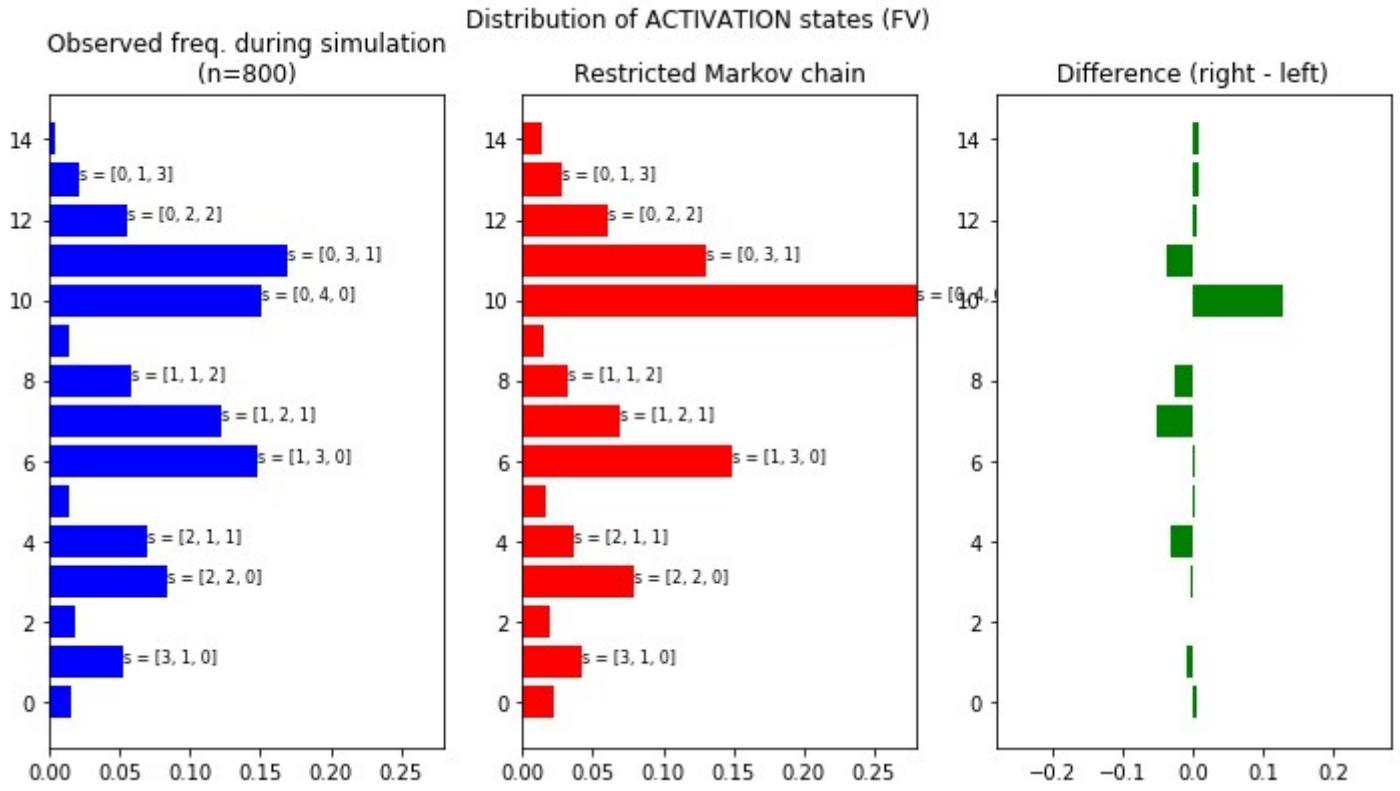


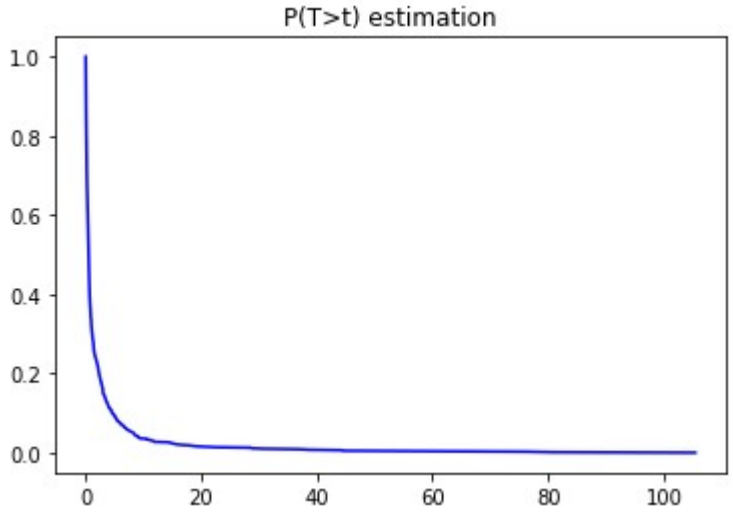


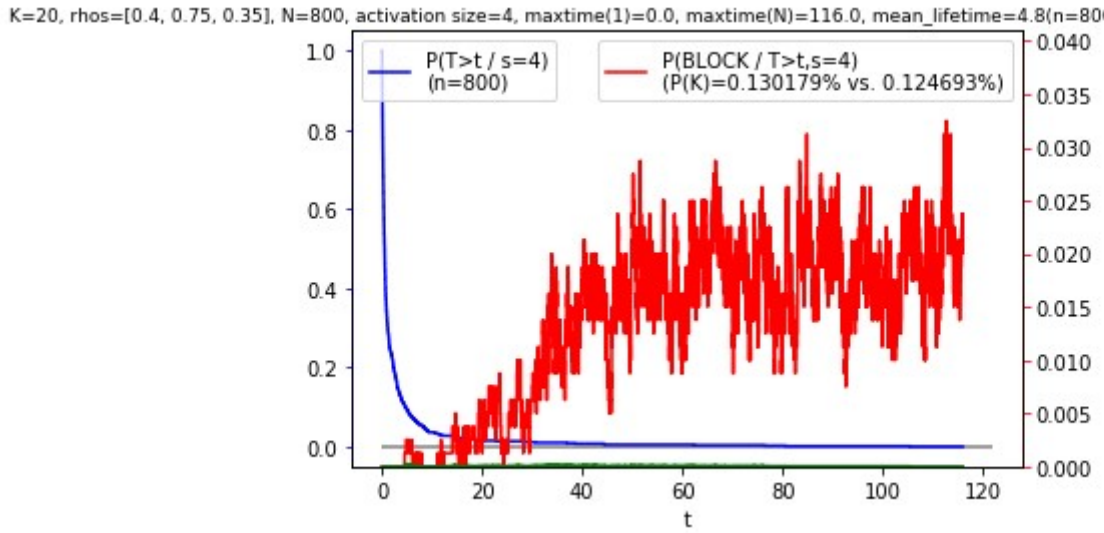
K=20, rhos=[0.4, 0.75, 0.35], N=800, activation size=4, maxtime(1)=0.0, maxtime(N)=96.8, mean_lifetime=4.7(n=800), finalize=ABS, seed=1737



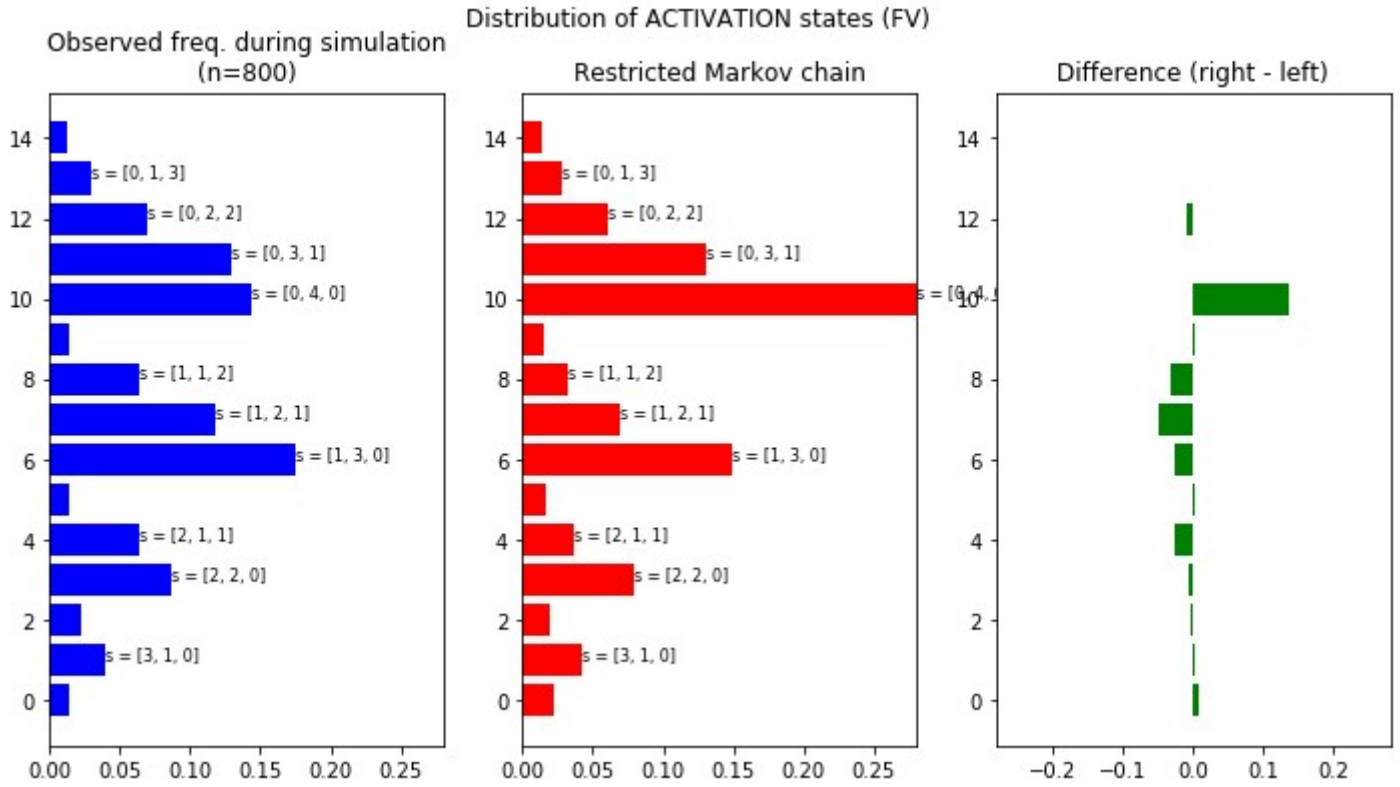
<matplotlib.figure.Figure at 0x2503cf8b438>

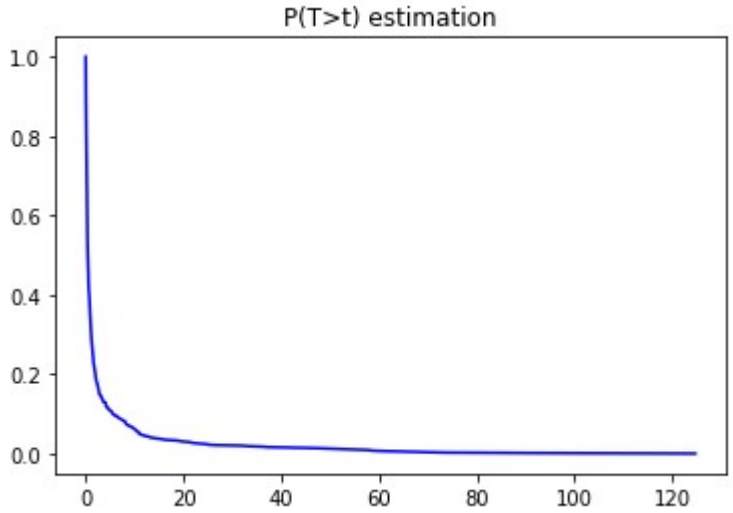

Distribution of ACTIVATION states (FV)
Observed freq. during simulation
(n=800)
Restricted Markov chain
Difference (right - left)
s = [0, 1, 3]
s = [0, 2, 2]
s = [0, 3, 1]
s = [0, 4, 0]
s = [1, 1, 2]
s = [1, 2, 1]
s = [1, 3, 0]
s = [2, 1, 1]
s = [2, 2, 0]
s = [3, 1, 0]


P(T>t) estimation

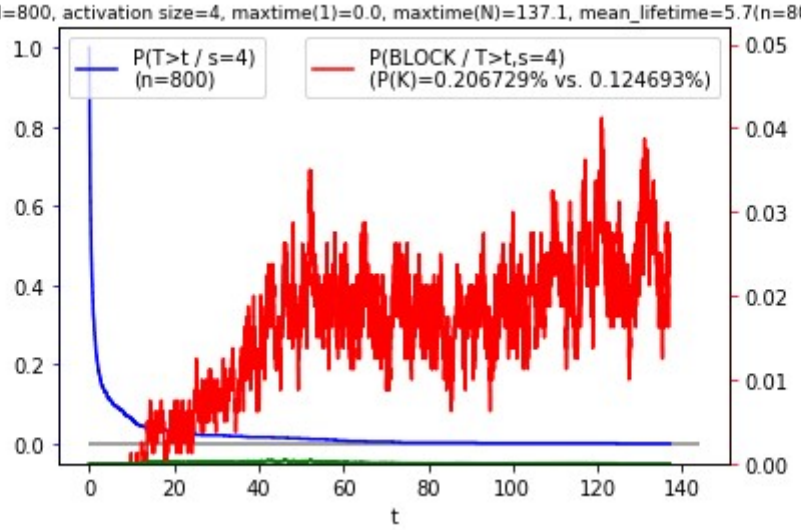


<matplotlib.figure.Figure at 0x25040f465f8>

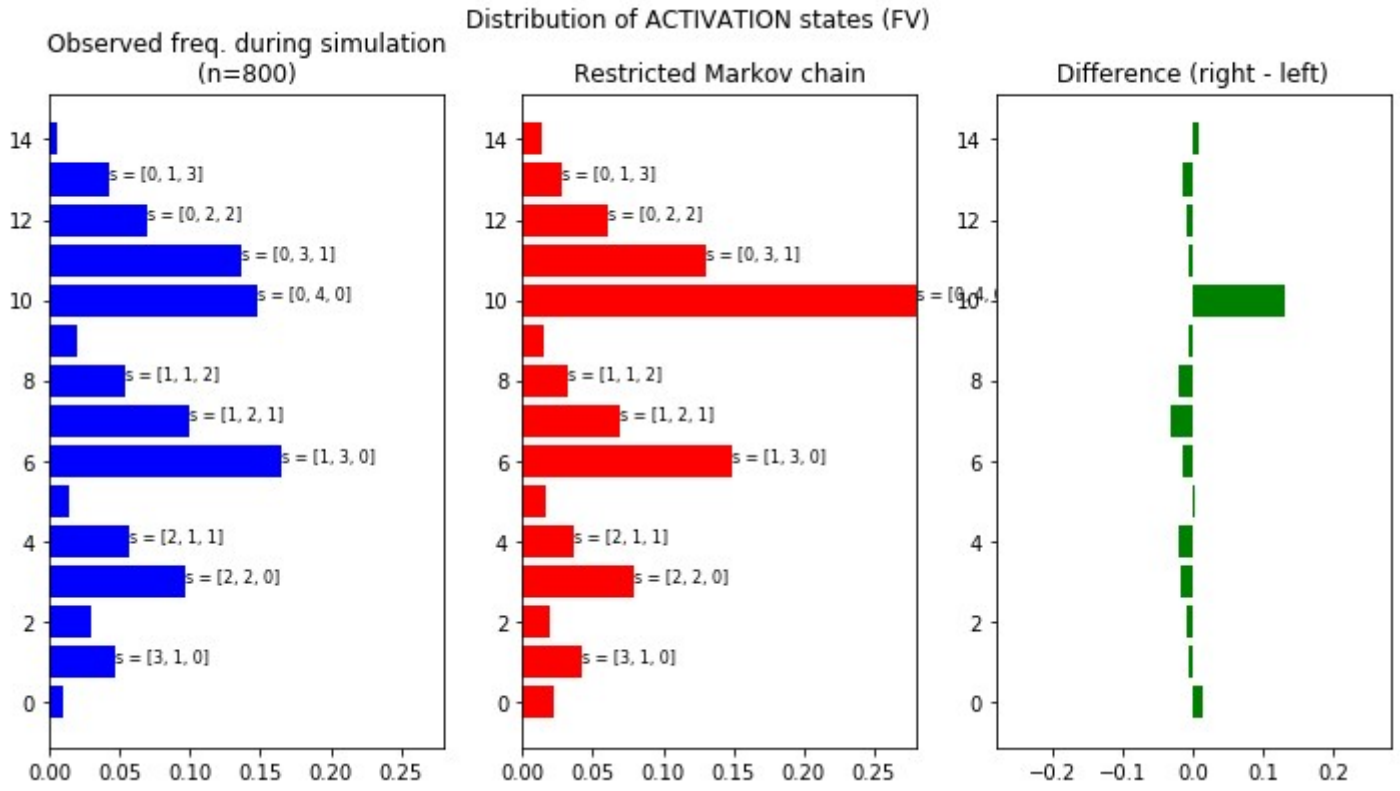


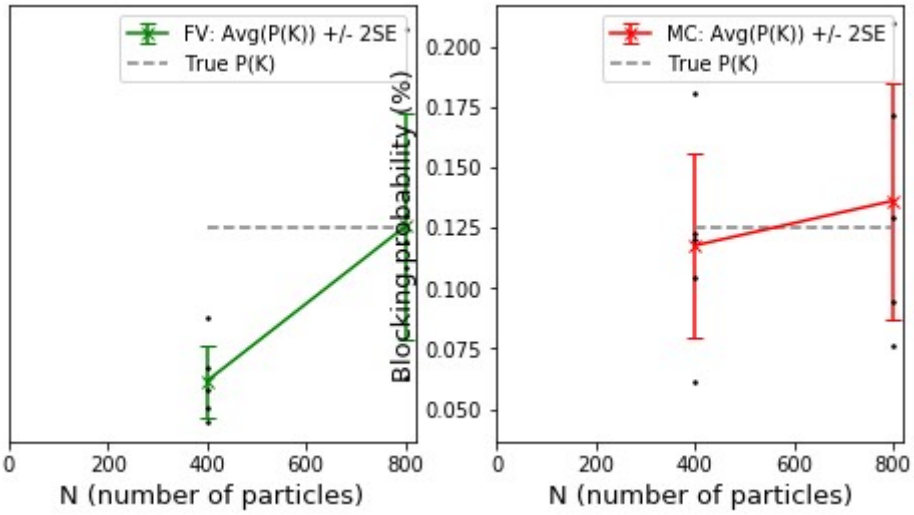


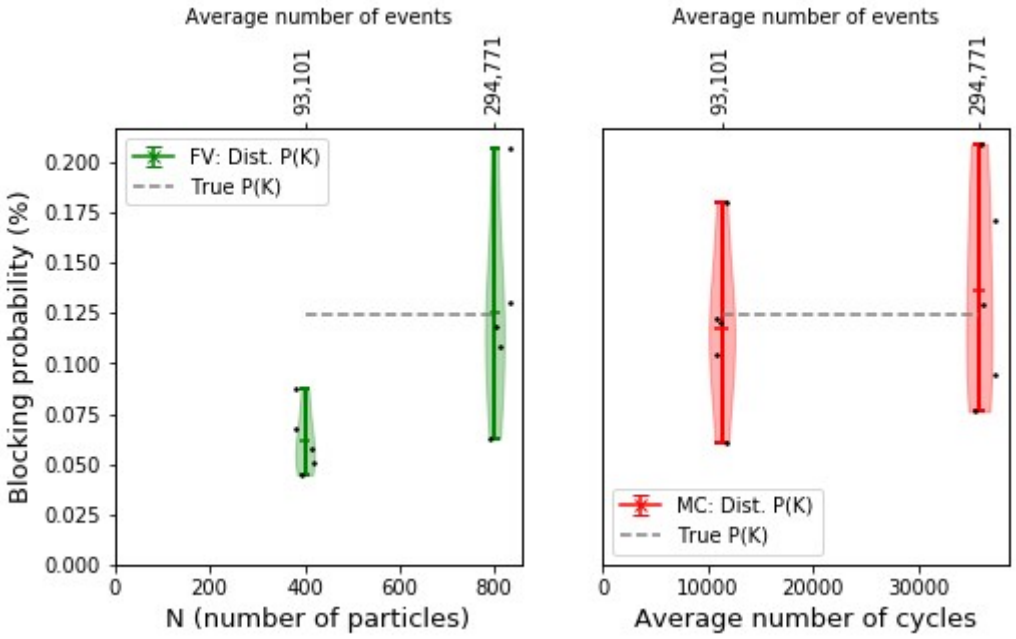
K=20, rhos=[0.4, 0.75, 0.35], N=800, activation size=4, maxtime(1)=0.0, maxtime(N)=137.1, mean_lifetime=5.7(n=800), finalize=ABS, seed=1757



<matplotlib.figure.Figure at 0x25044998588>


Distribution of ACTIVATION states (FV)
Observed freq. during simulation
(n=800)
Restricted Markov chain
Difference (right - left)
s = [0, 1, 3]
s = [0, 2, 2]
s = [0, 3, 1]
s = [0, 4, 0]
s = [1, 1, 2]
s = [1, 2, 1]
s = [1, 3, 0]
s = [2, 1, 1]
s = [2, 2, 0]
s = [3, 1, 0]


FV: Avg(P(K)) +/- 2SE
True P(K)
MC: Avg(P(K)) +/- 2SE
True P(K)
Blocking probability (%)
N (number of particles)
N (number of particles)


Average number of events
93,101
294,771
FV: Dist. P(K)
True P(K)
Blocking probability (%)
0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0
200
400
600
800
N (number of particles)
Average number of events
93,101
294,771
MC: Dist. P(K)
True P(K)
0
10000
20000
30000
Average number of cycles

In [2]: