```
Last login: Wed Apr  1 11:15:30 on ttys000
Run-Mac:~ mac$ cd ~/.ssh
Run-Mac:.ssh mac$ ssh -i "Runzhe.pem" ubuntu@ec2-18-204-44-50.compute-1.amazonaws.com
The authenticity of host 'ec2-18-204-44-50.compute-1.amazonaws.com (18.204.44.50)' can't be established.
ECDSA key fingerprint is SHA256:SZnx14SGdZRIodFQIUQ+lSMPAKn4Zdao4KWqw+Z1TjY.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-18-204-44-50.compute-1.amazonaws.com,18.204.44.50' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1060-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Wed Apr  1 16:43:23 UTC 2020

  System load:  0.72              Processes:           374
  Usage of /:   55.5% of 15.45GB  Users logged in:     0
  Memory usage: 0%                IP address for ens5: 172.31.9.82
  Swap usage:   0%

 * Kubernetes 1.18 GA is now available! See https://microk8s.io for docs or
   install it with:

     sudo snap install microk8s --channel=1.18 --classic

 * Multipass 1.1 adds proxy support for developers behind enterprise
   firewalls. Rapid prototyping for cloud operations just got easier.

     https://multipass.run/

 * Canonical Livepatch is available for installation.
   - Reduce system reboots and improve kernel security. Activate at:
     https://ubuntu.com/livepatch

53 packages can be updated.
0 updates are security updates.


Last login: Thu Mar  5 21:23:34 2020 from 107.13.161.147
ubuntu@ip-172-31-9-82:~$ export openblas_num_threads=1; export OMP_NUM_THREADS=1; python EC2.py
^[[A12:44, 04/01; num of cores:36

Basic setting:[T, sd_O, sd_D, sd_R, sd_u_O, w_O, w_A,  simple, M_in_R, u_O_u_D, mean_reversion, poisO] = [672, 10, 10, None, 0.2, 1, 1,
False, True, 10, False, True]


--------------------------------------
[pattern_seed, sd_R] = [0, 0.5]

max(u_O) =  156.6
O_threshold = 80
means of Order:

141.6 107.8 121.0 155.7 144.5

81.8 120.3 96.5 97.5 108.0

102.4 133.1 115.8 101.9 108.7

106.3 134.1 95.5 105.9 83.9

59.7 113.4 118.3 85.8 156.6

target policy:

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

0 1 1 1 1

number of reward locations:  24
O_threshold = 90
target policy:

1 1 1 1 1

0 1 1 1 1

1 1 1 1 1

1 1 1 1 0

0 1 1 0 1
```

number of reward locations: 21
O_threshold = 100
target policy:

1 1 1 1 1

0 1 0 0 1

1 1 1 1 1

1 1 0 1 0

0 1 1 0 1

number of reward locations: 18
O_threshold = 110
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 1 0 0

0 1 0 0 0

0 1 1 0 1

number of reward locations: 11
O_threshold = 120
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 0 0 0

0 1 0 0 0

0 0 0 0 1

number of reward locations: 8
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE

Value of Behaviour policy:74.872
O_threshold = 80
MC for this TARGET:[83.929, 0.059]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-1.12, -1.39, 0.76]][[2.88, -83.93, -9.06]]
std:[[0.08, 0.09, 0.16]][[0.11, 0.0, 0.07]]
MSE:[[1.12, 1.39, 0.78]][[2.88, 83.93, 9.06]]
MSE(-DR):[[0.0, 0.27, -0.34]][[1.76, 82.81, 7.94]]
**
==============

O_threshold = 90
MC for this TARGET:[82.09, 0.054]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-0.78, -1.02, 0.1]][[3.35, -82.09, -7.22]]
std:[[0.09, 0.1, 0.17]][[0.05, 0.0, 0.07]]
MSE:[[0.79, 1.02, 0.2]][[3.35, 82.09, 7.22]]
MSE(-DR):[[0.0, 0.23, -0.59]][[2.56, 81.3, 6.43]]
**
==============

O_threshold = 100
MC for this TARGET:[85.633, 0.052]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.49, -2.74, -3.38]][[0.29, -85.63, -10.76]]
std:[[0.08, 0.09, 0.02]][[0.04, 0.0, 0.07]]
MSE:[[2.49, 2.74, 3.38]][[0.29, 85.63, 10.76]]
MSE(-DR):[[0.0, 0.25, 0.89]][[-2.2, 83.14, 8.27]]
==============

O_threshold = 110
MC for this TARGET:[83.148, 0.043]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-3.39, -3.58, -3.6]][[-3.33, -83.15, -8.28]]
std:[[0.21, 0.21, 0.18]][[0.01, 0.0, 0.07]]
MSE:[[3.4, 3.59, 3.6]][[3.33, 83.15, 8.28]]
MSE(-DR):[[0.0, 0.19, 0.2]][[-0.07, 79.75, 4.88]]
==============

```
O_threshold = 120
MC for this TARGET:[83.839, 0.044]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-7.28, -7.45, -6.92]][[-7.27, -83.84, -8.97]]
std:[[0.39, 0.37, 0.17]][[0.04, 0.0, 0.07]]
MSE:[[7.29, 7.46, 6.92]][[7.27, 83.84, 8.97]]
MSE(-DR):[[0.0, 0.17, -0.37]][[-0.02, 76.55, 1.68]]
==============


[[ 1.12  1.39  0.78  2.88 83.93  9.06]
 [ 0.79  1.02  0.2   3.35 82.09  7.22]
 [ 2.49  2.74  3.38  0.29 85.63 10.76]
 [ 3.4   3.59  3.6   3.33 83.15  8.28]
 [ 7.29  7.46  6.92  7.27 83.84  8.97]]


time spent until now: 3.5 mins


_____
[pattern_seed, sd_R] = [0, 5]

max(u_O) =  156.6
O_threshold = 80
means of Order:

141.6 107.8 121.0 155.7 144.5

81.8 120.3 96.5 97.5 108.0

102.4 133.1 115.8 101.9 108.7

106.3 134.1 95.5 105.9 83.9

59.7 113.4 118.3 85.8 156.6

target policy:

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

0 1 1 1 1

number of reward locations:  24
O_threshold = 90
target policy:

1 1 1 1 1

0 1 1 1 1

1 1 1 1 1

1 1 1 1 0

0 1 1 0 1

number of reward locations:  21
O_threshold = 100
target policy:

1 1 1 1 1

0 1 0 0 1

1 1 1 1 1

1 1 0 1 0

0 1 1 0 1

number of reward locations:  18
O_threshold = 110
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 1 0 0

0 1 0 0 0
```

```
0 1 1 0 1

number of reward locations:  11
O_threshold = 120
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 0 0 0

0 1 0 0 0

0 0 0 0 1

number of reward locations:  8
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE

----------------------------------------
Value of Behaviour policy:74.88
O_threshold = 80
MC for this TARGET:[83.927, 0.068]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-1.22, -1.45, 0.74]][[2.86, -83.93, -9.05]]
std:[[0.04, 0.04, 0.18]][[0.09, 0.0, 0.07]]
MSE:[[1.22, 1.45, 0.76]][[2.86, 83.93, 9.05]]
MSE(-DR):[[0.0, 0.23, -0.46]][[1.64, 82.71, 7.83]]
**
==============


O_threshold = 90
MC for this TARGET:[82.089, 0.062]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-0.81, -1.06, 0.11]][[3.28, -82.09, -7.21]]
std:[[0.02, 0.04, 0.2]][[0.06, 0.0, 0.07]]
MSE:[[0.81, 1.06, 0.23]][[3.28, 82.09, 7.21]]
MSE(-DR):[[0.0, 0.25, -0.58]][[2.47, 81.28, 6.4]]
**
==============


O_threshold = 100
MC for this TARGET:[85.631, 0.063]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.55, -2.8, -3.32]][[0.29, -85.63, -10.75]]
std:[[0.1, 0.12, 0.07]][[0.01, 0.0, 0.07]]
MSE:[[2.55, 2.8, 3.32]][[0.29, 85.63, 10.75]]
MSE(-DR):[[0.0, 0.25, 0.77]][[-2.26, 83.08, 8.2]]
==============


O_threshold = 110
MC for this TARGET:[83.146, 0.054]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-3.42, -3.62, -3.62]][[-3.28, -83.15, -8.27]]
std:[[0.14, 0.12, 0.16]][[0.01, 0.0, 0.07]]
MSE:[[3.42, 3.62, 3.62]][[3.28, 83.15, 8.27]]
MSE(-DR):[[0.0, 0.2, 0.2]][[-0.14, 79.73, 4.85]]
==============


O_threshold = 120
MC for this TARGET:[83.838, 0.053]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-7.34, -7.5, -6.92]][[-7.24, -83.84, -8.96]]
std:[[0.42, 0.38, 0.15]][[0.04, 0.0, 0.07]]
MSE:[[7.35, 7.51, 6.92]][[7.24, 83.84, 8.96]]
MSE(-DR):[[0.0, 0.16, -0.43]][[-0.11, 76.49, 1.61]]
==============


[[ 1.12  1.39  0.78  2.88 83.93  9.06]
 [ 0.79  1.02  0.2   3.35 82.09  7.22]
 [ 2.49  2.74  3.38  0.29 85.63 10.76]
 [ 3.4   3.59  3.6   3.33 83.15  8.28]
 [ 7.29  7.46  6.92  7.27 83.84  8.97]]


[[ 1.22  1.45  0.76  2.86 83.93  9.05]
 [ 0.81  1.06  0.23  3.28 82.09  7.21]
 [ 2.55  2.8   3.32  0.29 85.63 10.75]
 [ 3.42  3.62  3.62  3.28 83.15  8.27]
 [ 7.35  7.51  6.92  7.24 83.84  8.96]]
```

```
time spent until now: 6.7 mins


_____
[pattern_seed, sd_R] = [0, 10]

max(u_O) =  156.6
O_threshold = 80
means of Order:

141.6 107.8 121.0 155.7 144.5

81.8 120.3 96.5 97.5 108.0

102.4 133.1 115.8 101.9 108.7

106.3 134.1 95.5 105.9 83.9

59.7 113.4 118.3 85.8 156.6

target policy:

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

0 1 1 1 1

number of reward locations:  24
O_threshold = 90
target policy:

1 1 1 1 1

0 1 1 1 1

1 1 1 1 1

1 1 1 1 0

0 1 1 0 1

number of reward locations:  21
O_threshold = 100
target policy:

1 1 1 1 1

0 1 0 0 1

1 1 1 1 1

1 1 0 1 0

0 1 1 0 1

number of reward locations:  18
O_threshold = 110
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 1 0 0

0 1 0 0 0

0 1 1 0 1

number of reward locations:  11
O_threshold = 120
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 0 0 0

0 1 0 0 0

0 0 0 0 1

number of reward locations:  8
```

```
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE
1 -th target; 2 -th target; ^CProcess Process-1351:
Process Process-1344:
Process Process-1335:
Process Process-1350:
Process Process-1336:
Process Process-1345:
Process Process-1338:
Process Process-1337:
Process Process-1334:
Traceback (most recent call last):
  File "EC2.py", line 70, in <module>
Process Process-1343:
Process Process-1347:
Process Process-1333:
    print_flag_target = False
  File "/home/ubuntu/simu_funs.py", line 62, in simu
    value_reps = rep_seeds(once, OPE_rep_times)
  File "/home/ubuntu/_uti_basic.py", line 119, in rep_seeds
    return list(map(fun, range(rep_times)))
  File "/home/ubuntu/simu_funs.py", line 58, in once
    inner_parallel = inner_parallel)
  File "/home/ubuntu/simu_funs.py", line 202, in simu_once
    inner_parallel = inner_parallel)
  File "/home/ubuntu/main.py", line 131, in V_DR
    r = arr(parmap(getOneRegionValue, range(N), n_cores))
  File "/home/ubuntu/_uti_basic.py", line 75, in parmap
    [q_in.put((None, None)) for _ in range(nprocs)]
  File "/home/ubuntu/_uti_basic.py", line 75, in <listcomp>
    [q_in.put((None, None)) for _ in range(nprocs)]
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/queues.py", line 82, in put
Process Process-1357:
Process Process-1355:
Process Process-1349:
Process Process-1341:
Process Process-1342:
Process Process-1346:
Process Process-1356:
Process Process-1348:
Process Process-1353:
Process Process-1340:
Process Process-1352:
Process Process-1354:
Process Process-1339:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/main.py", line 404, in computeQV_basic
    SA_t1 = arr([[a[5], action] for a in validation_set])
KeyboardInterrupt
Traceback (most recent call last):
Traceback (most recent call last):
Traceback (most recent call last):
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
```

```
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/main.py", line 401, in computeQV_basic
    """wait. incorrect
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
KeyboardInterrupt
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/main.py", line 402, in computeQV_basic
    CV wait. use fixed parameters first
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/main.py", line 402, in computeQV_basic
    CV wait. use fixed parameters first
  File "/home/ubuntu/main.py", line 401, in computeQV_basic
    """wait. incorrect
  File "/home/ubuntu/main.py", line 402, in computeQV_basic
    CV wait. use fixed parameters first
KeyboardInterrupt
KeyboardInterrupt
KeyboardInterrupt
KeyboardInterrupt
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/main.py", line 401, in computeQV_basic
    """wait. incorrect
  File "/home/ubuntu/anaconda3/lib/python3.7/site-packages/numpy/core/shape_base.py", line 340, in hstack
    return _nx.concatenate(arrs, 1)
KeyboardInterrupt
Traceback (most recent call last):
Traceback (most recent call last):
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
Traceback (most recent call last):
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/main.py", line 402, in computeQV_basic
    CV wait. use fixed parameters first
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
```

```
  File "/home/ubuntu/main.py", line 402, in computeQV_basic
    CV wait. use fixed parameters first
  File "/home/ubuntu/anaconda3/lib/python3.7/site-packages/numpy/linalg/linalg.py", line 403, in solve
    r = gufunc(a, b, signature=signature, extobj=extobj)
Traceback (most recent call last):
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/anaconda3/lib/python3.7/site-packages/numpy/linalg/linalg.py", line 403, in solve
    r = gufunc(a, b, signature=signature, extobj=extobj)
Traceback (most recent call last):
  File "/home/ubuntu/main.py", line 405, in computeQV_basic
    QSA1 += alpha.T.dot(GRBF(Z_tilde, SA_t, gamma_q) + identity(2 * T)* 1e-8).T
KeyboardInterrupt
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/site-packages/numpy/linalg/linalg.py", line 403, in solve
    r = gufunc(a, b, signature=signature, extobj=extobj)
KeyboardInterrupt
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
KeyboardInterrupt
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
  File "/home/ubuntu/main.py", line 402, in computeQV_basic
    CV wait. use fixed parameters first
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/anaconda3/lib/python3.7/site-packages/numpy/linalg/linalg.py", line 403, in solve
    r = gufunc(a, b, signature=signature, extobj=extobj)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/main.py", line 402, in computeQV_basic
    CV wait. use fixed parameters first
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/anaconda3/lib/python3.7/site-packages/numpy/linalg/linalg.py", line 403, in solve
    r = gufunc(a, b, signature=signature, extobj=extobj)
KeyboardInterrupt
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
KeyboardInterrupt
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
  File "/home/ubuntu/main.py", line 402, in computeQV_basic
    CV wait. use fixed parameters first
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/anaconda3/lib/python3.7/site-packages/numpy/linalg/linalg.py", line 403, in solve
    r = gufunc(a, b, signature=signature, extobj=extobj)
  File "/home/ubuntu/main.py", line 402, in computeQV_basic
    CV wait. use fixed parameters first
  File "/home/ubuntu/anaconda3/lib/python3.7/site-packages/numpy/linalg/linalg.py", line 403, in solve
    r = gufunc(a, b, signature=signature, extobj=extobj)
KeyboardInterrupt
KeyboardInterrupt
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 85, in getOneRegionValue
    spatial = False)
  File "/home/ubuntu/main.py", line 232, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
```

```
  File "/home/ubuntu/weight.py", line 99, in __init__
    self.sess.run(tf.global_variables_initializer())
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
    if not self._sem.acquire(block, timeout):
KeyboardInterrupt
ubuntu@ip-172-31-9-82:~$ export openblas_num_threads=1; export OMP_NUM_THREADS=1; python EC2.py
12:54, 04/01; num of cores:36

Basic setting:[T, sd_O, sd_D, sd_R, sd_u_O, w_O, w_A,  simple, M_in_R, u_O_u_D, mean_reversion, pois0] = [672, 10, 10, None, 0.2, 1, 1,
False, True, 10, False, True]


_____
[pattern_seed, sd_R] = [0, 0.5]

max(u_O) =  156.6
O_threshold = 80
means of Order:

141.6 107.8 121.0 155.7 144.5

81.8 120.3 96.5 97.5 108.0

102.4 133.1 115.8 101.9 108.7

106.3 134.1 95.5 105.9 83.9

59.7 113.4 118.3 85.8 156.6

target policy:

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

0 1 1 1 1

number of reward locations:  24
O_threshold = 90
target policy:

1 1 1 1 1

0 1 1 1 1

1 1 1 1 1

1 1 1 1 0

0 1 1 0 1

number of reward locations:  21
O_threshold = 100
target policy:

1 1 1 1 1

0 1 0 0 1

1 1 1 1 1

1 1 0 1 0

0 1 1 0 1

number of reward locations:  18
O_threshold = 110
target policy:

1 0 1 1 1

0 1 0 0 0
```

```
0 1 1 0 0

0 1 0 0 0

0 1 1 0 1

number of reward locations:  11
O_threshold = 120
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 0 0 0

0 1 0 0 0

0 0 0 0 1

number of reward locations:  8
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE

----------------------------------------
Value of Behaviour policy:74.872
O_threshold = 80
MC for this TARGET:[83.929, 0.059]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-1.17, -1.39, 0.72]][[2.9, -83.93, -9.06]]
std:[[0.08, 0.09, 0.15]][[0.07, 0.0, 0.07]]
MSE:[[1.17, 1.39, 0.74]][[2.9, 83.93, 9.06]]
MSE(-DR):[[0.0, 0.22, -0.43]][[1.73, 82.76, 7.89]]
**
==============


O_threshold = 90
MC for this TARGET:[82.09, 0.054]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-0.8, -1.02, 0.1]][[3.34, -82.09, -7.22]]
std:[[0.11, 0.1, 0.18]][[0.06, 0.0, 0.07]]
MSE:[[0.81, 1.02, 0.21]][[3.34, 82.09, 7.22]]
MSE(-DR):[[0.0, 0.21, -0.6]][[2.53, 81.28, 6.41]]
**
==============


O_threshold = 100
MC for this TARGET:[85.633, 0.052]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.47, -2.74, -3.34]][[0.27, -85.63, -10.76]]
std:[[0.09, 0.09, 0.04]][[0.02, 0.0, 0.07]]
MSE:[[2.47, 2.74, 3.34]][[0.27, 85.63, 10.76]]
MSE(-DR):[[0.0, 0.27, 0.87]][[-2.2, 83.16, 8.29]]
==============


O_threshold = 110
MC for this TARGET:[83.148, 0.043]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-3.4, -3.58, -3.6]][[-3.31, -83.15, -8.28]]
std:[[0.22, 0.21, 0.23]][[0.02, 0.0, 0.07]]
MSE:[[3.41, 3.59, 3.61]][[3.31, 83.15, 8.28]]
MSE(-DR):[[0.0, 0.18, 0.2]][[-0.1, 79.74, 4.87]]
==============


O_threshold = 120
MC for this TARGET:[83.839, 0.044]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-7.32, -7.45, -6.97]][[-7.27, -83.84, -8.97]]
std:[[0.41, 0.37, 0.16]][[0.06, 0.0, 0.07]]
MSE:[[7.33, 7.46, 6.97]][[7.27, 83.84, 8.97]]
MSE(-DR):[[0.0, 0.13, -0.36]][[-0.06, 76.51, 1.64]]
==============


[[ 1.17  1.39  0.74  2.9  83.93  9.06]
 [ 0.81  1.02  0.21  3.34 82.09  7.22]
 [ 2.47  2.74  3.34  0.27 85.63 10.76]
 [ 3.41  3.59  3.61  3.31 83.15  8.28]
 [ 7.33  7.46  6.97  7.27 83.84  8.97]]


time spent until now: 3.2 mins


----------------------------------------
```

[pattern_seed, sd_R] = [0, 5]

max(u_O) = 156.6
O_threshold = 80
means of Order:

141.6 107.8 121.0 155.7 144.5

81.8 120.3 96.5 97.5 108.0

102.4 133.1 115.8 101.9 108.7

106.3 134.1 95.5 105.9 83.9

59.7 113.4 118.3 85.8 156.6

target policy:

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

0 1 1 1 1

number of reward locations: 24
O_threshold = 90
target policy:

1 1 1 1 1

0 1 1 1 1

1 1 1 1 1

1 1 1 1 0

0 1 1 0 1

number of reward locations: 21
O_threshold = 100
target policy:

1 1 1 1 1

0 1 0 0 1

1 1 1 1 1

1 1 0 1 0

0 1 1 0 1

number of reward locations: 18
O_threshold = 110
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 1 0 0

0 1 0 0 0

0 1 1 0 1

number of reward locations: 11
O_threshold = 120
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 0 0 0

0 1 0 0 0

0 0 0 0 1

number of reward locations: 8
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE

```
Value of Behaviour policy:74.88
O_threshold = 80
MC for this TARGET:[83.927, 0.068]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-1.21, -1.45, 0.75]][[2.89, -83.93, -9.05]]
std:[[0.03, 0.04, 0.2]][[0.11, 0.0, 0.07]]
MSE:[[1.21, 1.45, 0.78]][[2.89, 83.93, 9.05]]
MSE(-DR):[[0.0, 0.24, -0.43]][[1.68, 82.72, 7.84]]
**
==============

O_threshold = 90
MC for this TARGET:[82.089, 0.062]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-0.82, -1.06, 0.14]][[3.29, -82.09, -7.21]]
std:[[0.05, 0.04, 0.2]][[0.03, 0.0, 0.07]]
MSE:[[0.82, 1.06, 0.24]][[3.29, 82.09, 7.21]]
MSE(-DR):[[0.0, 0.24, -0.58]][[2.47, 81.27, 6.39]]
**
==============

O_threshold = 100
MC for this TARGET:[85.631, 0.063]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.56, -2.8, -3.41]][[0.3, -85.63, -10.75]]
std:[[0.08, 0.12, 0.08]][[0.03, 0.0, 0.07]]
MSE:[[2.56, 2.8, 3.41]][[0.3, 85.63, 10.75]]
MSE(-DR):[[0.0, 0.24, 0.85]][[-2.26, 83.07, 8.19]]
==============

O_threshold = 110
MC for this TARGET:[83.146, 0.054]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-3.44, -3.62, -3.57]][[-3.28, -83.15, -8.27]]
std:[[0.13, 0.12, 0.17]][[0.0, 0.0, 0.07]]
MSE:[[3.44, 3.62, 3.57]][[3.28, 83.15, 8.27]]
MSE(-DR):[[0.0, 0.18, 0.13]][[-0.16, 79.71, 4.83]]
==============

O_threshold = 120
MC for this TARGET:[83.838, 0.053]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-7.39, -7.5, -7.05]][[-7.24, -83.84, -8.96]]
std:[[0.4, 0.38, 0.16]][[0.08, 0.0, 0.07]]
MSE:[[7.4, 7.51, 7.05]][[7.24, 83.84, 8.96]]
MSE(-DR):[[0.0, 0.11, -0.35]][[-0.16, 76.44, 1.56]]
==============


[[ 1.17  1.39  0.74  2.9  83.93  9.06]
 [ 0.81  1.02  0.21  3.34 82.09  7.22]
 [ 2.47  2.74  3.34  0.27 85.63 10.76]
 [ 3.41  3.59  3.61  3.31 83.15  8.28]
 [ 7.33  7.46  6.97  7.27 83.84  8.97]]


[[ 1.21  1.45  0.78  2.89 83.93  9.05]
 [ 0.82  1.06  0.24  3.29 82.09  7.21]
 [ 2.56  2.8   3.41  0.3  85.63 10.75]
 [ 3.44  3.62  3.57  3.28 83.15  8.27]
 [ 7.4   7.51  7.05  7.24 83.84  8.96]]


time spent until now: 6.5 mins


--------------------------------------
[pattern_seed, sd_R] = [0, 10]

max(u_O) =  156.6
O_threshold = 80
means of Order:

141.6 107.8 121.0 155.7 144.5

81.8 120.3 96.5 97.5 108.0

102.4 133.1 115.8 101.9 108.7

106.3 134.1 95.5 105.9 83.9

59.7 113.4 118.3 85.8 156.6

target policy:
```

```
1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

0 1 1 1 1

number of reward locations:  24
```
O_threshold = 90
```
target policy:

1 1 1 1 1

0 1 1 1 1

1 1 1 1 1

1 1 1 1 0

0 1 1 0 1

number of reward locations:  21
```
O_threshold = 100
```
target policy:

1 1 1 1 1

0 1 0 0 1

1 1 1 1 1

1 1 0 1 0

0 1 1 0 1

number of reward locations:  18
```
O_threshold = 110
```
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 1 0 0

0 1 0 0 0

0 1 1 0 1

number of reward locations:  11
```
O_threshold = 120
```
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 0 0 0

0 1 0 0 0

0 0 0 0 1

number of reward locations:  8
1 -th target; 2 -th target; 3 -th target; 4 -th target; ^CProcess Process-1244:
Process Process-1237:
Process Process-1230:
Traceback (most recent call last):
Process Process-1248:
  File "EC2.py", line 70, in <module>
Process Process-1245:
    print_flag_target = False
  File "/home/ubuntu/simu_funs.py", line 62, in simu
Process Process-1229:
Process Process-1232:
    value_reps = rep_seeds(once, OPE_rep_times)
  File "/home/ubuntu/_uti_basic.py", line 119, in rep_seeds
    return list(map(fun, range(rep_times)))
  File "/home/ubuntu/simu_funs.py", line 58, in once
Process Process-1226:
    inner_parallel = inner_parallel)
  File "/home/ubuntu/simu_funs.py", line 202, in simu_once
Process Process-1243:
Process Process-1228:
Process Process-1241:
    inner_parallel = inner_parallel)
```

```
    File "/home/ubuntu/main.py", line 131, in V_DR
      r = arr(parmap(getOneRegionValue, range(N), n_cores))
    File "/home/ubuntu/_uti_basic.py", line 75, in parmap
      [q_in.put((None, None)) for _ in range(nprocs)]
    File "/home/ubuntu/_uti_basic.py", line 75, in <listcomp>
Process Process-1225:
      [q_in.put((None, None)) for _ in range(nprocs)]
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/queues.py", line 82, in put
Process Process-1234:
      if not self._sem.acquire(block, timeout):
KeyboardInterrupt
Process Process-1240:
Process Process-1239:
Traceback (most recent call last):
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
      self.run()
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
      self._target(*self._args, **self._kwargs)
    File "/home/ubuntu/_uti_basic.py", line 62, in fun
      q_out.put((i, f(x)))
    File "/home/ubuntu/main.py", line 59, in getOneRegionValue
      epsilon = epsilon)
Traceback (most recent call last):
    File "/home/ubuntu/main.py", line 237, in getWeight
      epsilon = epsilon, spatial = spatial, mean_field = mean_field)
    File "/home/ubuntu/weight.py", line 297, in train
      self.policy_ratio2: policy_ratio2
    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
      run_metadata_ptr)
    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
      feed_dict_tensor, options, run_metadata)
    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
      run_metadata)
    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
      return fn(*args)
    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
      options, feed_dict, fetch_list, target_list, run_metadata)
    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
      run_metadata)
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
      self.run()
Process Process-1235:
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
      self._target(*self._args, **self._kwargs)
KeyboardInterrupt
    File "/home/ubuntu/_uti_basic.py", line 62, in fun
      q_out.put((i, f(x)))
Traceback (most recent call last):
    File "/home/ubuntu/main.py", line 59, in getOneRegionValue
      epsilon = epsilon)
Traceback (most recent call last):
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
      self.run()
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
      self._target(*self._args, **self._kwargs)
Traceback (most recent call last):
    File "/home/ubuntu/_uti_basic.py", line 62, in fun
      q_out.put((i, f(x)))
Traceback (most recent call last):
    File "/home/ubuntu/main.py", line 59, in getOneRegionValue
      epsilon = epsilon)
    File "/home/ubuntu/main.py", line 237, in getWeight
      epsilon = epsilon, spatial = spatial, mean_field = mean_field)
    File "/home/ubuntu/weight.py", line 297, in train
      self.policy_ratio2: policy_ratio2
    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
      run_metadata_ptr)
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
      self.run()
    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
      feed_dict_tensor, options, run_metadata)
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
      self.run()
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
      self._target(*self._args, **self._kwargs)
    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
      run_metadata)
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
      self._target(*self._args, **self._kwargs)
    File "/home/ubuntu/_uti_basic.py", line 62, in fun
      q_out.put((i, f(x)))
    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
      return fn(*args)
Process Process-1247:
    File "/home/ubuntu/_uti_basic.py", line 62, in fun
      q_out.put((i, f(x)))
    File "/home/ubuntu/main.py", line 59, in getOneRegionValue
      epsilon = epsilon)
    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
```

```
      options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 297, in train
    self.policy_ratio2: policy_ratio2
Process Process-1233:
Process Process-1231:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/weight.py", line 286, in train
    policy_ratio = (PI1[subsamples] + epsilon)/(PI0[subsamples] + epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/weight.py", line 297, in train
    self.policy_ratio2: policy_ratio2
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
KeyboardInterrupt
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
KeyboardInterrupt
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 297, in train
    self.policy_ratio2: policy_ratio2
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1142, in _run
    np_val = np.asarray(subfeed_val, dtype=subfeed_dtype)
KeyboardInterrupt
Process Process-1242:
Traceback (most recent call last):
Process Process-1227:
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 297, in train
    self.policy_ratio2: policy_ratio2
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
```

```
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 297, in train
    self.policy_ratio2: policy_ratio2
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
Traceback (most recent call last):
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/weight.py", line 297, in train
    self.policy_ratio2: policy_ratio2
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/weight.py", line 297, in train
    self.policy_ratio2: policy_ratio2
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1142, in _run
    np_val = np.asarray(subfeed_val, dtype=subfeed_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/anaconda3/lib/python3.7/site-packages/numpy/core/numeric.py", line 538, in asarray
    return array(a, dtype, copy=False, order=order)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
KeyboardInterrupt
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
```

```
      q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 297, in train
    self.policy_ratio2: policy_ratio2
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 297, in train
    self.policy_ratio2: policy_ratio2
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
ubuntu@ip-172-31-9-82:~$ export openblas_num_threads=1; export OMP_NUM_THREADS=1; python EC2.py
13:02, 04/01; num of cores:36

Basic setting:[T, sd_O, sd_D, sd_R, sd_u_O, w_O, w_A,  simple, M_in_R, u_O_u_D, mean_reversion, poisO] = [672, 10, 10, None, 0.2, 1, 1,
False, True, 10, False, True]


--------------------------------------
[pattern_seed, sd_R] = [0, 0.5]

max(u_O) =  156.6
O_threshold = 80
means of Order:

141.6 107.8 121.0 155.7 144.5

81.8 120.3 96.5 97.5 108.0

102.4 133.1 115.8 101.9 108.7

106.3 134.1 95.5 105.9 83.9

59.7 113.4 118.3 85.8 156.6

target policy:

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

0 1 1 1 1

number of reward locations:  24
O_threshold = 90
target policy:

1 1 1 1 1

0 1 1 1 1
```

```
1 1 1 1 1

1 1 1 1 0

0 1 1 0 1

number of reward locations:   21
O_threshold = 100
target policy:

1 1 1 1 1

0 1 0 0 1

1 1 1 1 1

1 1 0 1 0

0 1 1 0 1

number of reward locations:   18
O_threshold = 110
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 1 0 0

0 1 0 0 0

0 1 1 0 1

number of reward locations:   11
O_threshold = 120
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 0 0 0

0 1 0 0 0

0 0 0 0 1

number of reward locations:   8
Process Process-5:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Process Process-4:
Process Process-3:
Process Process-1:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
```

```
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
Traceback (most recent call last):
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Process Process-6:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Process Process-14:
Process Process-18:
Traceback (most recent call last):
Process Process-11:
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
```

```
      epsilon = epsilon)
   File "/home/ubuntu/main.py", line 222, in getWeight
     w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
   File "/home/ubuntu/weight.py", line 37, in __init__
     tf.random.set_seed(0)
   File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
     attr = super(DeprecationWrapper, self).__getattribute__(name)
 AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
 Process Process-25:
 Process Process-17:
 Traceback (most recent call last):
   File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
     self.run()
   File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
     self._target(*self._args, **self._kwargs)
   File "/home/ubuntu/_uti_basic.py", line 62, in fun
     q_out.put((i, f(x)))
   File "/home/ubuntu/main.py", line 59, in getOneRegionValue
     epsilon = epsilon)
   File "/home/ubuntu/main.py", line 222, in getWeight
     w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
   File "/home/ubuntu/weight.py", line 37, in __init__
     tf.random.set_seed(0)
   File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
     attr = super(DeprecationWrapper, self).__getattribute__(name)
 AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
 Traceback (most recent call last):
   File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
     self.run()
   File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
     self._target(*self._args, **self._kwargs)
 Process Process-8:
   File "/home/ubuntu/_uti_basic.py", line 62, in fun
     q_out.put((i, f(x)))
   File "/home/ubuntu/main.py", line 59, in getOneRegionValue
     epsilon = epsilon)
   File "/home/ubuntu/main.py", line 222, in getWeight
     w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
   File "/home/ubuntu/weight.py", line 37, in __init__
     tf.random.set_seed(0)
   File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
     attr = super(DeprecationWrapper, self).__getattribute__(name)
 AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
 Traceback (most recent call last):
   File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
     self.run()
   File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
     self._target(*self._args, **self._kwargs)
   File "/home/ubuntu/_uti_basic.py", line 62, in fun
     q_out.put((i, f(x)))
   File "/home/ubuntu/main.py", line 59, in getOneRegionValue
     epsilon = epsilon)
   File "/home/ubuntu/main.py", line 222, in getWeight
     w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
   File "/home/ubuntu/weight.py", line 37, in __init__
     tf.random.set_seed(0)
   File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
     attr = super(DeprecationWrapper, self).__getattribute__(name)
 AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
 Process Process-21:
 Traceback (most recent call last):
   File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
     self.run()
   File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
     self._target(*self._args, **self._kwargs)
   File "/home/ubuntu/_uti_basic.py", line 62, in fun
     q_out.put((i, f(x)))
   File "/home/ubuntu/main.py", line 59, in getOneRegionValue
     epsilon = epsilon)
   File "/home/ubuntu/main.py", line 222, in getWeight
     w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
   File "/home/ubuntu/weight.py", line 37, in __init__
     tf.random.set_seed(0)
   File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
     attr = super(DeprecationWrapper, self).__getattribute__(name)
 AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
 Process Process-19:
 Process Process-10:
 Traceback (most recent call last):
   File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
     self.run()
   File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
     self._target(*self._args, **self._kwargs)
   File "/home/ubuntu/_uti_basic.py", line 62, in fun
     q_out.put((i, f(x)))
   File "/home/ubuntu/main.py", line 59, in getOneRegionValue
     epsilon = epsilon)
   File "/home/ubuntu/main.py", line 222, in getWeight
     w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
```

```
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Process Process-9:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Process Process-20:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Process Process-13:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Process Process-16:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
```

```
Process Process-36:
Process Process-24:
Process Process-12:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
Traceback (most recent call last):
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Process Process-22:
Process Process-7:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Process Process-23:
Process Process-15:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
```

```
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 222, in getWeight
    w_hidden = w_hidden, Learning_rate = Learning_rate, reg_weight = reg_weight)
  File "/home/ubuntu/weight.py", line 37, in __init__
    tf.random.set_seed(0)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/deprecation_wrapper.py", line 100, in __getattribute__
    attr = super(DeprecationWrapper, self).__getattribute__(name)
AttributeError: module 'tensorflow._api.v1.random' has no attribute 'set_seed'
^CTraceback (most recent call last):
  File "EC2.py", line 70, in <module>
    print_flag_target = False
  File "/home/ubuntu/simu_funs.py", line 62, in simu
    value_reps = rep_seeds(once, OPE_rep_times)
  File "/home/ubuntu/_uti_basic.py", line 119, in rep_seeds
    return list(map(fun, range(rep_times)))
  File "/home/ubuntu/simu_funs.py", line 58, in once
    inner_parallel = inner_parallel)
  File "/home/ubuntu/simu_funs.py", line 202, in simu_once
    inner_parallel = inner_parallel)
  File "/home/ubuntu/main.py", line 131, in V_DR
    r = arr(parmap(getOneRegionValue, range(N), n_cores))
  File "/home/ubuntu/_uti_basic.py", line 75, in parmap
    [q_in.put((None, None)) for _ in range(nprocs)]
  File "/home/ubuntu/_uti_basic.py", line 75, in <listcomp>
    [q_in.put((None, None)) for _ in range(nprocs)]
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/queues.py", line 82, in put
    if not self._sem.acquire(block, timeout):
KeyboardInterrupt
^Xubuntu@ip-172-31-9-82:~$ [A
[A: command not found
ubuntu@ip-172-31-9-82:~$ ^C
ubuntu@ip-172-31-9-82:~$ export openblas_num_threads=1; export OMP_NUM_THREADS=1; python EC2.py
13:04, 04/01; num of cores:36

Basic setting:[T, sd_O, sd_D, sd_R, sd_u_O, w_O, w_A,  simple, M_in_R, u_O_u_D, mean_reversion, poisO] = [672, 10, 10, None, 0.2, 1, 1,
False, True, 10, False, True]


--------------------------------------
[pattern_seed, sd_R] = [0, 0.5]

max(u_O) =  156.6
O_threshold = 80
means of Order:

141.6 107.8 121.0 155.7 144.5

81.8 120.3 96.5 97.5 108.0

102.4 133.1 115.8 101.9 108.7

106.3 134.1 95.5 105.9 83.9

59.7 113.4 118.3 85.8 156.6

target policy:

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

0 1 1 1 1
```

number of reward locations: 24
O_threshold = 90
target policy:

1 1 1 1 1

0 1 1 1 1

1 1 1 1 1

1 1 1 1 0

0 1 1 0 1

number of reward locations: 21
O_threshold = 100
target policy:

1 1 1 1 1

0 1 0 0 1

1 1 1 1 1

1 1 0 1 0

0 1 1 0 1

number of reward locations: 18
O_threshold = 110
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 1 0 0

0 1 0 0 0

0 1 1 0 1

number of reward locations: 11
O_threshold = 120
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 0 0 0

0 1 0 0 0

0 0 0 0 1

number of reward locations: 8
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE

Value of Behaviour policy:74.872
O_threshold = 80
MC for this TARGET:[83.929, 0.059]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-1.16, -1.39, 0.71]][[2.9, -83.93, -9.06]]
std:[[0.08, 0.09, 0.16]][[0.07, 0.0, 0.07]]
MSE:[[1.16, 1.39, 0.73]][[2.9, 83.93, 9.06]]
MSE(-DR):[[0.0, 0.23, -0.43]][[1.74, 82.77, 7.9]]
**
==============

O_threshold = 90
MC for this TARGET:[82.09, 0.054]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-0.8, -1.02, 0.06]][[3.33, -82.09, -7.22]]
std:[[0.09, 0.1, 0.19]][[0.05, 0.0, 0.07]]
MSE:[[0.81, 1.02, 0.2]][[3.33, 82.09, 7.22]]
MSE(-DR):[[0.0, 0.21, -0.61]][[2.52, 81.28, 6.41]]
**
==============

O_threshold = 100
MC for this TARGET:[85.633, 0.052]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.49, -2.74, -3.4]][[0.29, -85.63, -10.76]]
std:[[0.09, 0.09, 0.0]][[0.05, 0.0, 0.07]]

MSE:[[2.49, 2.74, 3.4]][[0.29, 85.63, 10.76]]
MSE(-DR):[[0.0, 0.25, 0.91]][[-2.2, 83.14, 8.27]]
==============

O_threshold = 110
MC for this TARGET:[83.148, 0.043]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-3.39, -3.58, -3.56]][[-3.3, -83.15, -8.28]]
std:[[0.2, 0.21, 0.17]][[0.0, 0.0, 0.07]]
MSE:[[3.4, 3.59, 3.56]][[3.3, 83.15, 8.28]]
MSE(-DR):[[0.0, 0.19, 0.16]][[-0.1, 79.75, 4.88]]
==============

O_threshold = 120
MC for this TARGET:[83.839, 0.044]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-7.32, -7.45, -6.96]][[-7.25, -83.84, -8.97]]
std:[[0.41, 0.37, 0.2]][[0.04, 0.0, 0.07]]
MSE:[[7.33, 7.46, 6.96]][[7.25, 83.84, 8.97]]
MSE(-DR):[[0.0, 0.13, -0.37]][[-0.08, 76.51, 1.64]]
==============

[[1.16 1.39 0.73 2.9 83.93 9.06]
 [0.81 1.02 0.2   3.33 82.09 7.22]
 [2.49 2.74 3.4   0.29 85.63 10.76]
 [3.4   3.59 3.56 3.3 83.15 8.28]
 [7.33 7.46 6.96 7.25 83.84 8.97]]

time spent until now: 3.2 mins

[pattern_seed, sd_R] = [0, 5]

max(u_O) = 156.6
O_threshold = 80
means of Order:

141.6 107.8 121.0 155.7 144.5

81.8 120.3 96.5 97.5 108.0

102.4 133.1 115.8 101.9 108.7

106.3 134.1 95.5 105.9 83.9

59.7 113.4 118.3 85.8 156.6

target policy:

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

0 1 1 1 1

number of reward locations: 24
O_threshold = 90
target policy:

1 1 1 1 1

0 1 1 1 1

1 1 1 1 1

1 1 1 1 0

0 1 1 0 1

number of reward locations: 21
O_threshold = 100
target policy:

1 1 1 1 1

0 1 0 0 1

1 1 1 1 1

1 1 0 1 0

```
0 1 1 0 1

number of reward locations:  18
O_threshold = 110
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 1 0 0

0 1 0 0 0

0 1 1 0 1

number of reward locations:  11
O_threshold = 120
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 0 0 0

0 1 0 0 0

0 0 0 0 1

number of reward locations:  8
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE

---------------------------------------
Value of Behaviour policy:74.88
O_threshold = 80
MC for this TARGET:[83.927, 0.068]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-1.21, -1.45, 0.77]][[2.88, -83.93, -9.05]]
std:[[0.04, 0.04, 0.17]][[0.07, 0.0, 0.07]]
MSE:[[1.21, 1.45, 0.79]][[2.88, 83.93, 9.05]]
MSE(-DR):[[0.0, 0.24, -0.42]][[1.67, 82.72, 7.84]]
**
==============


O_threshold = 90
MC for this TARGET:[82.089, 0.062]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-0.83, -1.06, 0.11]][[3.27, -82.09, -7.21]]
std:[[0.03, 0.04, 0.19]][[0.03, 0.0, 0.07]]
MSE:[[0.83, 1.06, 0.22]][[3.27, 82.09, 7.21]]
MSE(-DR):[[0.0, 0.23, -0.61]][[2.44, 81.26, 6.38]]
**
==============


O_threshold = 100
MC for this TARGET:[85.631, 0.063]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.55, -2.8, -3.38]][[0.3, -85.63, -10.75]]
std:[[0.1, 0.12, 0.11]][[0.01, 0.0, 0.07]]
MSE:[[2.55, 2.8, 3.38]][[0.3, 85.63, 10.75]]
MSE(-DR):[[0.0, 0.25, 0.83]][[-2.25, 83.08, 8.2]]
==============


O_threshold = 110
MC for this TARGET:[83.146, 0.054]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-3.43, -3.62, -3.6]][[-3.28, -83.15, -8.27]]
std:[[0.14, 0.12, 0.19]][[0.01, 0.0, 0.07]]
MSE:[[3.43, 3.62, 3.61]][[3.28, 83.15, 8.27]]
MSE(-DR):[[0.0, 0.19, 0.18]][[-0.15, 79.72, 4.84]]
==============


O_threshold = 120
MC for this TARGET:[83.838, 0.053]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-7.36, -7.5, -6.98]][[-7.23, -83.84, -8.96]]
std:[[0.42, 0.38, 0.15]][[0.06, 0.0, 0.07]]
MSE:[[7.37, 7.51, 6.98]][[7.23, 83.84, 8.96]]
MSE(-DR):[[0.0, 0.14, -0.39]][[-0.14, 76.47, 1.59]]
==============
```

```
[[ 1.16  1.39  0.73  2.9  83.93  9.06]
 [ 0.81  1.02  0.2   3.33 82.09  7.22]
 [ 2.49  2.74  3.4   0.29 85.63 10.76]
 [ 3.4   3.59  3.56  3.3  83.15  8.28]
 [ 7.33  7.46  6.96  7.25 83.84  8.97]]


[[ 1.21  1.45  0.79  2.88 83.93  9.05]
 [ 0.83  1.06  0.22  3.27 82.09  7.21]
 [ 2.55  2.8   3.38  0.3  85.63 10.75]
 [ 3.43  3.62  3.61  3.28 83.15  8.27]
 [ 7.37  7.51  6.98  7.23 83.84  8.96]]


time spent until now: 6.5 mins


_____
[pattern_seed, sd_R] = [0, 10]

max(u_O) =  156.6
O_threshold = 80
means of Order:

141.6 107.8 121.0 155.7 144.5

81.8 120.3 96.5 97.5 108.0

102.4 133.1 115.8 101.9 108.7

106.3 134.1 95.5 105.9 83.9

59.7 113.4 118.3 85.8 156.6

target policy:

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

0 1 1 1 1

number of reward locations:  24
O_threshold = 90
target policy:

1 1 1 1 1

0 1 1 1 1

1 1 1 1 1

1 1 1 1 0

0 1 1 0 1

number of reward locations:  21
O_threshold = 100
target policy:

1 1 1 1 1

0 1 0 0 1

1 1 1 1 1

1 1 0 1 0

0 1 1 0 1

number of reward locations:  18
O_threshold = 110
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 1 0 0

0 1 0 0 0

0 1 1 0 1

number of reward locations:  11
```

O_threshold = 120
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 0 0 0

0 1 0 0 0

0 0 0 0 1

number of reward locations: 8
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE
1 -th target; 2 -th target; 3 -th target; 4 -th target; 5 -th target; one rep DONE

Value of Behaviour policy:74.886
O_threshold = 80
MC for this TARGET:[83.925, 0.091]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-1.25, -1.52, 0.82]][[2.83, -83.92, -9.04]]
std:[[0.01, 0.02, 0.18]][[0.1, 0.0, 0.07]]
MSE:[[1.25, 1.52, 0.84]][[2.83, 83.92, 9.04]]
MSE(-DR):[[0.0, 0.27, -0.41]][[1.58, 82.67, 7.79]]
**
==============

O_threshold = 90
MC for this TARGET:[82.087, 0.086]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-0.86, -1.11, 0.13]][[3.21, -82.09, -7.2]]
std:[[0.06, 0.04, 0.27]][[0.03, 0.0, 0.07]]
MSE:[[0.86, 1.11, 0.3]][[3.21, 82.09, 7.2]]
MSE(-DR):[[0.0, 0.25, -0.56]][[2.35, 81.23, 6.34]]
**
==============

O_threshold = 100
MC for this TARGET:[85.629, 0.088]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.61, -2.86, -3.37]][[0.3, -85.63, -10.74]]
std:[[0.13, 0.14, 0.15]][[0.0, 0.0, 0.07]]
MSE:[[2.61, 2.86, 3.37]][[0.3, 85.63, 10.74]]
MSE(-DR):[[0.0, 0.25, 0.76]][[-2.31, 83.02, 8.13]]
==============

O_threshold = 110
MC for this TARGET:[83.145, 0.082]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-3.45, -3.66, -3.62]][[-3.28, -83.14, -8.26]]
std:[[0.01, 0.03, 0.15]][[0.0, 0.0, 0.07]]
MSE:[[3.45, 3.66, 3.62]][[3.28, 83.14, 8.26]]
MSE(-DR):[[0.0, 0.21, 0.17]][[-0.17, 79.69, 4.81]]
==============

O_threshold = 120
MC for this TARGET:[83.836, 0.079]
    [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-7.44, -7.56, -7.03]][[-7.19, -83.84, -8.95]]
std:[[0.42, 0.39, 0.09]][[0.06, 0.0, 0.07]]
MSE:[[7.45, 7.57, 7.03]][[7.19, 83.84, 8.95]]
MSE(-DR):[[0.0, 0.12, -0.42]][[-0.26, 76.39, 1.5]]
==============

[[1.16 1.39 0.73 2.9 83.93 9.06]
 [0.81 1.02 0.2   3.33 82.09 7.22]
 [2.49 2.74 3.4   0.29 85.63 10.76]
 [3.4   3.59 3.56 3.3 83.15 8.28]
 [7.33 7.46 6.96 7.25 83.84 8.97]]

[[1.21 1.45 0.79 2.88 83.93 9.05]
 [0.83 1.06 0.22 3.27 82.09 7.21]
 [2.55 2.8   3.38 0.3 85.63 10.75]
 [3.43 3.62 3.61 3.28 83.15 8.27]
 [7.37 7.51 6.98 7.23 83.84 8.96]]

[[1.25 1.52 0.84 2.83 83.92 9.04]
 [0.86 1.11 0.3   3.21 82.09 7.2]
 [2.61 2.86 3.37 0.3 85.63 10.74]
 [3.45 3.66 3.62 3.28 83.14 8.26]

```
 [ 7.45  7.57  7.03  7.19 83.84  8.95]]


time spent until now: 9.7 mins


_____
[pattern_seed, sd_R] = [0, 20]

max(u_O) =  156.6
O_threshold = 80
means of Order:

141.6 107.8 121.0 155.7 144.5

81.8 120.3 96.5 97.5 108.0

102.4 133.1 115.8 101.9 108.7

106.3 134.1 95.5 105.9 83.9

59.7 113.4 118.3 85.8 156.6

target policy:

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

0 1 1 1 1

number of reward locations:  24
O_threshold = 90
target policy:

1 1 1 1 1

0 1 1 1 1

1 1 1 1 1

1 1 1 1 0

0 1 1 0 1

number of reward locations:  21
O_threshold = 100
target policy:

1 1 1 1 1

0 1 0 0 1

1 1 1 1 1

1 1 0 1 0

0 1 1 0 1

number of reward locations:  18
O_threshold = 110
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 1 0 0

0 1 0 0 0

0 1 1 0 1

number of reward locations:  11
O_threshold = 120
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 0 0 0

0 1 0 0 0
```

```
0 0 0 0 1

number of reward locations:  8
1 -th target; 2 -th target; ^CProcess Process-1703:
Traceback (most recent call last):
Process Process-1711:
  File "EC2.py", line 70, in <module>
Process Process-1706:
Process Process-1704:
Process Process-1698:
Process Process-1708:
Process Process-1709:
Process Process-1715:
Process Process-1712:
Process Process-1699:
Process Process-1700:
Process Process-1702:
Process Process-1705:
Process Process-1696:
    print_flag_target = False
Process Process-1717:
  File "/home/ubuntu/simu_funs.py", line 62, in simu
    value_reps = rep_seeds(once, OPE_rep_times)
  File "/home/ubuntu/_uti_basic.py", line 119, in rep_seeds
    return list(map(fun, range(rep_times)))
  File "/home/ubuntu/simu_funs.py", line 58, in once
    inner_parallel = inner_parallel)
  File "/home/ubuntu/simu_funs.py", line 202, in simu_once
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
    inner_parallel = inner_parallel)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/main.py", line 131, in V_DR
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
Process Process-1707:
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
    r = arr(parmap(getOneRegionValue, range(N), n_cores))
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 75, in parmap
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1176, in _run
    return fetch_handler.build_results(self, results)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 564, in build_results
    return self._fetch_mapper.build_results(full_values)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 382, in build_results
    for m, vi in zip(self._mappers, self._value_indices):
Traceback (most recent call last):
Traceback (most recent call last):
KeyboardInterrupt
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
```

```
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
Process Process-1713:
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
KeyboardInterrupt
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
Process Process-1695:
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
```

```
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
KeyboardInterrupt
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1154, in _run
    feed_map[compat.as_bytes(subfeed_t.name)] = (subfeed_t, subfeed_val)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/util/compat.py", line 59, in as_bytes
    elif isinstance(bytes_or_text, _six.text_type):
Traceback (most recent call last):
KeyboardInterrupt
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
```

```
      feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
KeyboardInterrupt
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1145, in _run
    not subfeed_t.get_shape().is_compatible_with(np_val.shape)):
Process Process-1701:
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_shape.py", line 1086, in is_compatible_with
    if not x_dim.is_compatible_with(y_dim):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_shape.py", line 253, in is_compatible_with
    self._value == other.value)
    [q_in.put((None, None)) for _ in range(nprocs)]
Traceback (most recent call last):
KeyboardInterrupt
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/_uti_basic.py", line 75, in <listcomp>
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
    [q_in.put((None, None)) for _ in range(nprocs)]
```

```
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
Process Process-1714:
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/queues.py", line 82, in put
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
Process Process-1716:
    if not self._sem.acquire(block, timeout):
KeyboardInterrupt
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
Process Process-1693:
KeyboardInterrupt
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1113, in _run
    subfeed, allow_tensor=True, allow_operation=False)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 3796, in as_graph_element
    return self._as_graph_element_locked(obj, allow_tensor, allow_operation)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 3874, in _as_graph_element_locked
    if obj.graph is not self:
KeyboardInterrupt
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
Traceback (most recent call last):
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 639, in __hash__
    def __hash__(self):
Traceback (most recent call last):
KeyboardInterrupt
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
Traceback (most recent call last):
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
```

```
    epsilon = epsilon)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/weight.py", line 304, in train
    #                  print(i, " training losses:", train_loss)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/weight.py", line 166, in get_density_ratio
    self.state : states
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
KeyboardInterrupt
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
KeyboardInterrupt
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 299, in train
    self.state2 : s2,
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1145, in _run
    not subfeed_t.get_shape().is_compatible_with(np_val.shape)):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 512, in get_shape
    return self.shape
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 390, in shape
    @property
```

```
KeyboardInterrupt
Process Process-1697:
Process Process-1694:
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 304, in train
    #                    print(i, " training losses:", train_loss)
  File "/home/ubuntu/weight.py", line 166, in get_density_ratio
    self.state : states
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 950, in run
    run_metadata_ptr)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1173, in _run
    feed_dict_tensor, options, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1350, in _do_run
    run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1356, in _do_call
    return fn(*args)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1341, in _run_fn
    options, feed_dict, fetch_list, target_list, run_metadata)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/client/session.py", line 1429, in _call_tf_sessionrun
    run_metadata)
KeyboardInterrupt
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 77, in getOneRegionValue
    CV_QV = CV_QV, penalty_range = penalty, spatial = False)
  File "/home/ubuntu/main.py", line 263, in computeQV
    spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/main.py", line 395, in computeQV_basic
    Kg = SA_GRBF(Z, gamma_g)
  File "/home/ubuntu/main.py", line 371, in SA_GRBF
    K = GRBF(Z[:,:(l - 1)], Z2[:,:(l - 1)], gamma) #+ identity(T) * 1e-8
  File "/home/ubuntu/anaconda3/lib/python3.7/site-packages/sklearn/metrics/pairwise.py", line 823, in rbf_kernel
    np.exp(K, K)      # exponentiate K in-place
KeyboardInterrupt
ubuntu@ip-172-31-9-82:~$ export openblas_num_threads=1; export OMP_NUM_THREADS=1; python EC2.py
13:15, 04/01; num of cores:36

Basic setting:[T, sd_O, sd_D, sd_R, sd_u_O, w_O, w_A,  simple, M_in_R, u_O_u_D, mean_reversion, poisO] = [672, 10, 10, None, 0.2, 1, 1,
False, True, 10, False, True]


--------------------------------------
[pattern_seed, sd_R] = [0, 0.5]

max(u_O) =  156.6
O_threshold = 80
means of Order:

141.6 107.8 121.0 155.7 144.5

81.8 120.3 96.5 97.5 108.0

102.4 133.1 115.8 101.9 108.7

106.3 134.1 95.5 105.9 83.9

59.7 113.4 118.3 85.8 156.6

target policy:

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

1 1 1 1 1

0 1 1 1 1

number of reward locations:  24
O_threshold = 90
target policy:
```

```
1 1 1 1 1

0 1 1 1 1

1 1 1 1 1

1 1 1 1 0

0 1 1 0 1

number of reward locations:  21
O_threshold = 100
target policy:

1 1 1 1 1

0 1 0 0 1

1 1 1 1 1

1 1 0 1 0

0 1 1 0 1

number of reward locations:  18
O_threshold = 110
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 1 0 0

0 1 0 0 0

0 1 1 0 1

number of reward locations:  11
O_threshold = 120
target policy:

1 0 1 1 1

0 1 0 0 0

0 1 0 0 0

0 1 0 0 0

0 0 0 0 1

number of reward locations:  8
Process Process-4:
Process Process-1:
Process Process-6:
Process Process-5:
Process Process-9:
Process Process-7:
Process Process-3:
Process Process-2:
Traceback (most recent call last):
Traceback (most recent call last):
Traceback (most recent call last):
Traceback (most recent call last):
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
Traceback (most recent call last):
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
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  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
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    File "/home/ubuntu/main.py", line 237, in getWeight
      epsilon = epsilon, spatial = spatial, mean_field = mean_field)


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    File "/home/ubuntu/weight.py", line 247, in train
      subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
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      value, seed=seed1, seed2=seed2, name=name)
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    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
      "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
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      self._target(*self._args, **self._kwargs)
    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
      "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
      self._target(*self._args, **self._kwargs)
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
      self.run()
    File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
      "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
    File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
      self._target(*self._args, **self._kwargs)
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
    File "/home/ubuntu/_uti_basic.py", line 62, in fun
      q_out.put((i, f(x)))
```

```
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
Process Process-18:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].
```

```
During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) - got shape [671], bu
t wanted [].
Process Process-25:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
```

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  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
Process Process-19:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
Process Process-17:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
```

```
      values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) - got shape [671], bu
t wanted [].
Process Process-14:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
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  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) - got shape [671], bu
t wanted [].
Process Process-23:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

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  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) - got shape [671], bu
t wanted [].
Process Process-21:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
```

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rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

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  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
Process Process-11:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
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    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
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    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
```

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ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
Process Process-20:
Process Process-16:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

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Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

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Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
```

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  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
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Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
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  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
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    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
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    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
Process Process-10:
Process Process-22:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
Traceback (most recent call last):
```

```
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
Process Process-24:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
```

```
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].
Process Process-8:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conversion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conversion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].
Process Process-15:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
```

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  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) - got shape [671], bu
t wanted [].
Process Process-13:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) - got shape [671], but wanted [].

During handling of the above exception, another exception occurred:
```

```
Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
Process Process-12:
Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 527, in _apply_op_helper
    preferred_dtype=default_dtype)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 541, in _apply_op_helper
    values, as_ref=input_arg.is_ref).dtype.name
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/ops.py", line 1224, in internal_convert_to_tensor
    ret = conversion_func(value, dtype=dtype, name=name, as_ref=as_ref)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 305, in _constant_tensor_conve
rsion_function
    return constant(v, dtype=dtype, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 246, in constant
    allow_broadcast=True)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/constant_op.py", line 284, in _constant_impl
    allow_broadcast=allow_broadcast))
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/tensor_util.py", line 475, in make_tensor_proto
    _GetDenseDimensions(values)))
ValueError: Argument must be a dense tensor: range(0, 671) — got shape [671], but wanted [].

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 297, in _bootstrap
    self.run()
  File "/home/ubuntu/anaconda3/lib/python3.7/multiprocessing/process.py", line 99, in run
    self._target(*self._args, **self._kwargs)
  File "/home/ubuntu/_uti_basic.py", line 62, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/main.py", line 59, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 237, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 247, in train
    subsamples = tf.random.shuffle(range(N), seed = 1)[:1000]
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/random_ops.py", line 283, in random_shuffle
    value, seed=seed1, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/ops/gen_random_ops.py", line 638, in random_shuffle
    "RandomShuffle", value=value, seed=seed, seed2=seed2, name=name)
  File "/home/ubuntu/.local/lib/python3.7/site-packages/tensorflow/python/framework/op_def_library.py", line 545, in _apply_op_helper
    (input_name, err))
ValueError: Tried to convert 'value' to a tensor and failed. Error: Argument must be a dense tensor: range(0, 671) — got shape [671], bu
t wanted [].
```