```
  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 70, in fun
    q_out.put((i, f(x)))
  File "/home/ubuntu/simu_funs.py", line 81, in once
    inner_parallel = inner_parallel)
  File "/home/ubuntu/simu_funs.py", line 233, in simu_once
    inner_parallel = inner_parallel)
  File "/home/ubuntu/main.py", line 158, in V_DR
    r = arr([getOneRegionValue(i) for i in range(N)])
  File "/home/ubuntu/main.py", line 158, in <listcomp>
    r = arr([getOneRegionValue(i) for i in range(N)])
  File "/home/ubuntu/main.py", line 87, in getOneRegionValue
    epsilon = epsilon)
  File "/home/ubuntu/main.py", line 262, in getWeight
    epsilon = epsilon, spatial = spatial, mean_field = mean_field)
  File "/home/ubuntu/weight.py", line 301, 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)
ubuntu@ip-172-31-13-78:~$ export openblas_num_threads=1; export OMP_NUM_THREADS=1; python EC2.py
11:32, 04/13; num of cores:16
sd_u_O_30

Basic setting:[rep_times, sd_O, sd_D, sd_u_O, w_O, w_A, u_O_u_D, t_func] = [16, None, None, 30, 0.5, 1.5, 0, None]

[thre_range, sd_R_range, day_range, penalty_range]:  [[95, 100, 105, 110, 120, 135], [0, 20, 40], [7], [[0.0001, 5e-05], [0.0001, 5e-05]]]

----------------------------------------
[pattern_seed, day, sd_R] = [2, 7, 0]

max(u_O) =  168.8
O_threshold = 95
means of Order:

87.5 98.3 35.9 149.2 46.2

74.7 115.1 62.6 68.3 72.7

116.5 168.8 101.2 66.5 116.2

82.1 99.4 135.3 77.6 100.3

73.7 95.3 107.7 70.3 89.8

target policy:

0 1 0 1 0

0 1 0 0 0

1 1 1 0 1

0 1 1 0 1

0 1 1 0 0

number of reward locations:  12
O_threshold = 100
number of reward locations:  9
O_threshold = 105
number of reward locations:  7
O_threshold = 110
number of reward locations:  6
O_threshold = 120
number of reward locations:  3
O_threshold = 135
number of reward locations:  3
^CProcess Process-14:
Traceback (most recent call last):
Process Process-5:
  File "EC2.py", line 99, in <module>
Process Process-16:
Process Process-1:
Process Process-12:
Process Process-11:
    with_MF = with_MF, with_NO_MARL = with_NO_MARL, with_IS = with_IS)
Process Process-15:
  File "/home/ubuntu/simu_funs.py", line 83, in simu
Process Process-7:
Process Process-13:
Process Process-4:
    value_reps = parmap(once, range(OPE_rep_times), n_cores)
  File "/home/ubuntu/_uti_basic.py", line 83, in parmap
    [q_in.put((None, None)) for _ in range(nprocs)]
  File "/home/ubuntu/_uti_basic.py", line 83, 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
Process Process-8:
Process Process-10:
ubuntu@ip-172-31-13-78:~$ export openblas_num_threads=1; export OMP_NUM_THREADS=1; python EC2.py
11:32, 04/13; num of cores:16
sd_u_O_30

Basic setting:[rep_times, sd_O, sd_D, sd_u_O, w_O, w_A, u_O_u_D, t_func] = [16, None, None, 30, 0.5, 1.5, 0, None]

[thre_range, sd_R_range, day_range, penalty_range]:  [[95, 100, 105, 110, 120, 140], [0, 20, 40], [7], [[0.0001, 5e-05], [0.0001, 5e-05]]]

----------------------------------------
[pattern_seed, day, sd_R] = [2, 7, 0]

max(u_O) =  168.8
O_threshold = 95
means of Order:

87.5 98.3 35.9 149.2 46.2

74.7 115.1 62.6 68.3 72.7

116.5 168.8 101.2 66.5 116.2

82.1 99.4 135.3 77.6 100.3

73.7 95.3 107.7 70.3 89.8

target policy:

0 1 0 1 0

0 1 0 0 0

1 1 1 0 1

0 1 1 0 1

0 1 1 0 0

number of reward locations:  12
O_threshold = 100
number of reward locations:  9
O_threshold = 105
number of reward locations:  7
O_threshold = 110
number of reward locations:  6
O_threshold = 120
number of reward locations:  3
O_threshold = 140
number of reward locations:  2
 target 1 in 6 DONE!
target 2 in 6 DONE!
target 3 in 6 DONE!
target 4 in 6 DONE!
target 5 in 6 DONE!
target 6 in 6 DONE!

----------------------------------------
Value of Behaviour policy:53.141
O_threshold = 95
MC for this TARGET:[62.742, 0.084]
    [DR/QV/IS]: [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[1.76, 1.54, 0.29]][[1.81, -62.74, -9.6]]
std:[[0.41, 0.42, 0.31]][[0.26, 0.0, 0.25]]
MSE:[[1.81, 1.6, 0.42]][[1.83, 62.74, 9.6]]
MSE(-DR):[[0.0, -0.21, -1.39]][[0.02, 60.93, 7.79]]
*
=============
O_threshold = 100
MC for this TARGET:[61.833, 0.077]
    [DR/QV/IS]: [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-0.17, -0.32, -1.31]][[-1.35, -61.83, -8.69]]
std:[[0.47, 0.51, 0.32]][[0.26, 0.0, 0.25]]
MSE:[[0.5, 0.6, 1.55]][[1.37, 61.83, 8.69]]
MSE(-DR):[[0.0, 0.1, 0.85]][[0.87, 61.33, 8.19]]
**
=============
O_threshold = 105
MC for this TARGET:[62.0, 0.068]
    [DR/QV/IS]: [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.47, -2.58, -3.66]][[-4.32, -62.0, -8.86]]
std:[[0.48, 0.49, 0.47]][[0.29, 0.0, 0.25]]
MSE:[[2.52, 2.63, 3.69]][[4.33, 62.0, 8.86]]
```

```
MSE(-DR):[[0.0, 0.11, 1.17]][[1.81, 59.48, 6.34]]
***
=============
O_threshold = 110
MC for this TARGET:[60.863, 0.069]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-2.56, -2.64, -3.42]][[-5.33, -60.86, -7.72]]
std:[[0.34, 0.37, 0.46]][[0.3, 0.0, 0.25]]
MSE:[[2.58, 2.67, 3.45]][[5.34, 60.86, 7.72]]
MSE(-DR):[[0.0, 0.09, 0.87]][[2.76, 58.28, 5.14]]
***
=============
O_threshold = 120
MC for this TARGET:[62.009, 0.076]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-7.06, -7.05, -7.4]][[-12.48, -62.01, -8.87]]
std:[[0.72, 0.72, 0.51]][[0.35, 0.0, 0.25]]
MSE:[[7.1, 7.09, 7.42]][[12.48, 62.01, 8.87]]
MSE(-DR):[[0.0, -0.01, 0.32]][[5.38, 54.91, 1.77]]
***
=============
O_threshold = 140
MC for this TARGET:[65.768, 0.071]
   [DR/QV/IS]; [DR_NO_MARL, DR_NO_MF, V_behav]
bias:[[-12.57, -12.56, -12.74]][[-18.58, -65.77, -12.63]]
std:[[0.68, 0.66, 0.46]][[0.32, 0.0, 0.25]]
MSE:[[12.59, 12.58, 12.75]][[18.58, 65.77, 12.63]]
MSE(-DR):[[0.0, -0.01, 0.16]][[5.99, 53.18, 0.04]]
***
=============
[[ 1.81  1.6   0.42  1.83 62.74  9.6 ]
 [ 0.5   0.6   1.35  1.37 61.83  8.69]
 [ 2.52  2.63  3.69  4.33 62.    8.86]
 [ 2.58  2.67  3.45  5.34 60.86  7.72]
 [ 7.1   7.09  7.42 12.48 62.01  8.87]
 [12.59 12.58 12.75 18.58 65.77 12.63]]


time spent until now: 58.2 mins

12:30, 04/13

----------------------------------------
[pattern_seed, day, sd_R] = [2, 7, 20]

max(u_O) =  168.8
O_threshold = 95
means of Order:

87.5 98.3 35.9 149.2 46.2

74.7 115.1 62.6 68.3 72.7

116.5 168.8 101.2 66.5 116.2

82.1 99.4 135.3 77.6 100.3

73.7 95.3 107.7 70.3 89.8

target policy:

0 1 0 1 0

0 1 0 0 0

1 1 1 0 1

0 1 1 0 1

0 1 1 0 0

number of reward locations:  12
O_threshold = 100
number of reward locations:  9
O_threshold = 105
number of reward locations:  7
O_threshold = 110
number of reward locations:  6
O_threshold = 120
number of reward locations:  3
O_threshold = 140
number of reward locations:  2
```