

```

6
7
8 qn = DQNAgent(model=model, nb_actions=nb_actions, policy=policy, memory=memory,
9               processor=processor, nb_steps_warmup=agent_nb_steps_warmup, gamma=.99, target_model_update=agent_target_model_u
10              train_interval=agent_train_interval, batch_size=agent_batch_size,
11              enable_double_dqn=True,
12              #enable_dueling_dqn=True, dueling_type='avg'
13              )
14
15 https://github.com/keras-rl/keras-rl/tree/master/examples
16 dqn = DQNAgent(model=model, nb_actions=nb_actions, memory=memory, nb_steps_warmup=10,
17               enable_dueling_network=True, dueling_type='avg', target_model_update=1e-2, policy=policy)
18
19 dqn.show_hyperparams()
20 TO-DO
21 model.compile(loss='binary_crossentropy', optimizer='adam', metrics=['accuracy'])
22 ptimizer = optimizer_type # TO-DO
23 qn.compile(optimizer, metrics=['mae'])
24
25 ''
26 def huber_loss(a, b, in_keras=True):
27     error = a - b
28     quadratic_term = error*error / 2
29     linear_term = abs(error) - 1/2
30     use_linear_term = (abs(error) > 1.0)
31     if in_keras:
32         # Keras won't let us multiply floats by booleans, so we explicitly cast the booleans to floats
33         use_linear_term = K.cast(use_linear_term, 'float32')
34     return use_linear_term * linear_term + (1-use_linear_term) * quadratic_term
35
36 oss=huber_loss
37 ustom_objects={'huber_loss': huber_loss}
38 elf.model.compile(optimizer, loss=huber_loss)
39 ''

```

⚠ WARNING:tensorflow:From /usr/local/lib/python3.6/dist-packages/keras/optimizers.py:793: The name tf.train.Optimizer is deprecated
 "\ndef huber_loss(a, b, in_keras=True):\n error = a - b\n quadratic_term = error*error / 2\n linear_term = abs(err

```

1 # Timestamp para el nombre de archivo de pesos
2 now = datetime.now()
3 date_time = now.strftime("%Y%m%d%H%M")
4
5 # Nombre del archivo para guardar los pesos
6 weights_filename = 'dqn_{}_weights.h5f'.format(ENV_NAME)
7 weights_filename = date_time + '_' + weights_filename
8
9 # checkpoint por intervalo
10 saved_model= date_time + '_dqn_PartialRunPong_weight_{step}.h5'
11 checkpoint = ModelIntervalCheckpoint(saved_model, interval=50000)
12
13 # logs para TensorBoard
14 tb_log_dir = 'logs/tmp'
15 tb_callback = TensorBoard(log_dir=tb_log_dir, histogram_freq=0, write_graph=True)
16
17 nb_steps = 1750000
18 nb_steps = train_steps
19 # Entrenamiento con diferentes callbacks
20 #dqn.fit(env, nb_steps=nb_steps, visualize=False, callbacks=[checkpoint, tb_callback], verbose=2)
21 #dqn.fit(env, nb_steps=nb_steps, visualize=False, callbacks=[tb_callback], verbose=2)
22 #dqn.fit(env, nb_steps=nb_steps, visualize=False, callbacks=[checkpoint], verbose=2)
23 train_history = dqn.fit(env, nb_steps=nb_steps, visualize=False, verbose=2)
24
25
26 dqn.save_weights(weights_filename, overwrite=True)
27 print("Pesos guardados en:",weights_filename)
28
29 #nb_episodes = 3
30 #dqn.test(env, nb_episodes=nb_episodes, visualize=False)
31
32 grafica_entrenamiento(train_history)
33
34 calcula_media_test(dqn)
35
36 # colab 397.328 segundos
37 # local 754.133 segundos

```

⚠

Training for 1500000 steps ...

929/1500000: episode: 1, duration: 8.052s, episode steps: 929, steps per second: 115, episode reward: -20.000, mean rev
1753/1500000: episode: 2, duration: 2.604s, episode steps: 824, steps per second: 316, episode reward: -21.000, mean rev
2682/1500000: episode: 3, duration: 2.868s, episode steps: 929, steps per second: 324, episode reward: -21.000, mean rev
3724/1500000: episode: 4, duration: 3.242s, episode steps: 1042, steps per second: 321, episode reward: -20.000, mean rev
4792/1500000: episode: 5, duration: 3.327s, episode steps: 1068, steps per second: 321, episode reward: -20.000, mean rev
5616/1500000: episode: 6, duration: 2.535s, episode steps: 824, steps per second: 325, episode reward: -21.000, mean rev
6458/1500000: episode: 7, duration: 2.641s, episode steps: 842, steps per second: 319, episode reward: -20.000, mean rev
7568/1500000: episode: 8, duration: 3.418s, episode steps: 1110, steps per second: 325, episode reward: -21.000, mean rev
8593/1500000: episode: 9, duration: 3.149s, episode steps: 1025, steps per second: 325, episode reward: -19.000, mean rev
9530/1500000: episode: 10, duration: 2.885s, episode steps: 937, steps per second: 325, episode reward: -19.000, mean rev
10542/1500000: episode: 11, duration: 7.427s, episode steps: 1012, steps per second: 136, episode reward: -20.000, mean rev
11362/1500000: episode: 12, duration: 7.265s, episode steps: 820, steps per second: 113, episode reward: -21.000, mean rev
12258/1500000: episode: 13, duration: 7.951s, episode steps: 896, steps per second: 113, episode reward: -21.000, mean rev
13101/1500000: episode: 14, duration: 7.475s, episode steps: 843, steps per second: 113, episode reward: -21.000, mean rev
13986/1500000: episode: 15, duration: 7.678s, episode steps: 885, steps per second: 115, episode reward: -21.000, mean rev
14965/1500000: episode: 16, duration: 8.494s, episode steps: 979, steps per second: 115, episode reward: -20.000, mean rev
15962/1500000: episode: 17, duration: 8.592s, episode steps: 997, steps per second: 116, episode reward: -19.000, mean rev
16861/1500000: episode: 18, duration: 7.759s, episode steps: 899, steps per second: 116, episode reward: -20.000, mean rev
17653/1500000: episode: 19, duration: 6.896s, episode steps: 792, steps per second: 115, episode reward: -21.000, mean rev
18586/1500000: episode: 20, duration: 8.056s, episode steps: 933, steps per second: 116, episode reward: -20.000, mean rev
19488/1500000: episode: 21, duration: 7.815s, episode steps: 902, steps per second: 115, episode reward: -20.000, mean rev
20554/1500000: episode: 22, duration: 9.192s, episode steps: 1066, steps per second: 116, episode reward: -21.000, mean rev
21318/1500000: episode: 23, duration: 7.001s, episode steps: 764, steps per second: 109, episode reward: -21.000, mean rev
22207/1500000: episode: 24, duration: 7.902s, episode steps: 889, steps per second: 113, episode reward: -20.000, mean rev
23166/1500000: episode: 25, duration: 8.301s, episode steps: 959, steps per second: 116, episode reward: -20.000, mean rev
24005/1500000: episode: 26, duration: 7.405s, episode steps: 839, steps per second: 113, episode reward: -21.000, mean rev
24924/1500000: episode: 27, duration: 7.904s, episode steps: 919, steps per second: 116, episode reward: -20.000, mean rev
25855/1500000: episode: 28, duration: 8.023s, episode steps: 931, steps per second: 116, episode reward: -20.000, mean rev
26844/1500000: episode: 29, duration: 8.497s, episode steps: 989, steps per second: 116, episode reward: -20.000, mean rev
27812/1500000: episode: 30, duration: 8.324s, episode steps: 968, steps per second: 116, episode reward: -20.000, mean rev
28730/1500000: episode: 31, duration: 7.977s, episode steps: 918, steps per second: 115, episode reward: -21.000, mean rev
29541/1500000: episode: 32, duration: 7.041s, episode steps: 811, steps per second: 115, episode reward: -21.000, mean rev
30472/1500000: episode: 33, duration: 8.071s, episode steps: 931, steps per second: 115, episode reward: -20.000, mean rev
31584/1500000: episode: 34, duration: 9.559s, episode steps: 1112, steps per second: 116, episode reward: -19.000, mean rev
32543/1500000: episode: 35, duration: 8.152s, episode steps: 959, steps per second: 118, episode reward: -20.000, mean rev
33515/1500000: episode: 36, duration: 8.254s, episode steps: 972, steps per second: 118, episode reward: -21.000, mean rev
34431/1500000: episode: 37, duration: 7.799s, episode steps: 916, steps per second: 117, episode reward: -20.000, mean rev
35524/1500000: episode: 38, duration: 9.461s, episode steps: 1093, steps per second: 116, episode reward: -19.000, mean rev
36445/1500000: episode: 39, duration: 7.969s, episode steps: 921, steps per second: 116, episode reward: -20.000, mean rev
37427/1500000: episode: 40, duration: 8.594s, episode steps: 982, steps per second: 114, episode reward: -20.000, mean rev
38334/1500000: episode: 41, duration: 7.780s, episode steps: 907, steps per second: 117, episode reward: -21.000, mean rev
39342/1500000: episode: 42, duration: 8.837s, episode steps: 1008, steps per second: 114, episode reward: -19.000, mean rev
40273/1500000: episode: 43, duration: 8.193s, episode steps: 931, steps per second: 114, episode reward: -20.000, mean rev
41065/1500000: episode: 44, duration: 7.131s, episode steps: 792, steps per second: 111, episode reward: -21.000, mean rev
41985/1500000: episode: 45, duration: 8.315s, episode steps: 920, steps per second: 111, episode reward: -20.000, mean rev
42993/1500000: episode: 46, duration: 9.154s, episode steps: 1008, steps per second: 110, episode reward: -21.000, mean rev
43757/1500000: episode: 47, duration: 6.904s, episode steps: 764, steps per second: 111, episode reward: -21.000, mean rev
44600/1500000: episode: 48, duration: 7.550s, episode steps: 843, steps per second: 112, episode reward: -21.000, mean rev
45565/1500000: episode: 49, duration: 8.533s, episode steps: 965, steps per second: 113, episode reward: -21.000, mean rev
46491/1500000: episode: 50, duration: 7.947s, episode steps: 926, steps per second: 117, episode reward: -20.000, mean rev
47317/1500000: episode: 51, duration: 8.164s, episode steps: 826, steps per second: 101, episode reward: -21.000, mean rev
48197/1500000: episode: 52, duration: 8.540s, episode steps: 880, steps per second: 103, episode reward: -21.000, mean rev
49021/1500000: episode: 53, duration: 7.995s, episode steps: 824, steps per second: 103, episode reward: -21.000, mean rev
49966/1500000: episode: 54, duration: 9.098s, episode steps: 945, steps per second: 104, episode reward: -21.000, mean rev
50931/1500000: episode: 55, duration: 9.292s, episode steps: 965, steps per second: 104, episode reward: -21.000, mean rev
51783/1500000: episode: 56, duration: 8.235s, episode steps: 852, steps per second: 103, episode reward: -21.000, mean rev
52812/1500000: episode: 57, duration: 9.923s, episode steps: 1029, steps per second: 104, episode reward: -20.000, mean rev
53769/1500000: episode: 58, duration: 9.127s, episode steps: 957, steps per second: 105, episode reward: -19.000, mean rev
54716/1500000: episode: 59, duration: 9.076s, episode steps: 947, steps per second: 104, episode reward: -21.000, mean rev
55590/1500000: episode: 60, duration: 8.628s, episode steps: 874, steps per second: 101, episode reward: -21.000, mean rev
56414/1500000: episode: 61, duration: 8.201s, episode steps: 824, steps per second: 100, episode reward: -21.000, mean rev
57238/1500000: episode: 62, duration: 7.922s, episode steps: 824, steps per second: 104, episode reward: -21.000, mean rev
58062/1500000: episode: 63, duration: 7.799s, episode steps: 824, steps per second: 106, episode reward: -21.000, mean rev
58964/1500000: episode: 64, duration: 8.085s, episode steps: 902, steps per second: 112, episode reward: -20.000, mean rev
59802/1500000: episode: 65, duration: 8.088s, episode steps: 838, steps per second: 104, episode reward: -20.000, mean rev
60837/1500000: episode: 66, duration: 10.008s, episode steps: 1035, steps per second: 103, episode reward: -20.000, mean rev
61629/1500000: episode: 67, duration: 7.630s, episode steps: 792, steps per second: 104, episode reward: -21.000, mean rev
62679/1500000: episode: 68, duration: 10.137s, episode steps: 1050, steps per second: 104, episode reward: -20.000, mean rev
63619/1500000: episode: 69, duration: 8.956s, episode steps: 940, steps per second: 105, episode reward: -21.000, mean rev
64741/1500000: episode: 70, duration: 10.311s, episode steps: 1122, steps per second: 109, episode reward: -19.000, mean rev
65686/1500000: episode: 71, duration: 8.412s, episode steps: 945, steps per second: 112, episode reward: -21.000, mean rev
66662/1500000: episode: 72, duration: 8.419s, episode steps: 976, steps per second: 116, episode reward: -21.000, mean rev
67574/1500000: episode: 73, duration: 7.787s, episode steps: 912, steps per second: 117, episode reward: -21.000, mean rev
68398/1500000: episode: 74, duration: 7.061s, episode steps: 824, steps per second: 117, episode reward: -21.000, mean rev
69250/1500000: episode: 75, duration: 7.338s, episode steps: 852, steps per second: 116, episode reward: -21.000, mean rev
70227/1500000: episode: 76, duration: 8.345s, episode steps: 977, steps per second: 117, episode reward: -21.000, mean rev
71592/1500000: episode: 77, duration: 11.645s, episode steps: 1365, steps per second: 117, episode reward: -21.000, mean rev
72782/1500000: episode: 78, duration: 10.195s, episode steps: 1190, steps per second: 117, episode reward: -20.000, mean rev
73574/1500000: episode: 79, duration: 6.788s, episode steps: 792, steps per second: 117, episode reward: -21.000, mean rev
74963/1500000: episode: 80, duration: 11.912s, episode steps: 1389, steps per second: 117, episode reward: -20.000, mean rev
75787/1500000: episode: 81, duration: 7.011s, episode steps: 824, steps per second: 118, episode reward: -21.000, mean rev
76821/1500000: episode: 82, duration: 8.821s, episode steps: 1034, steps per second: 117, episode reward: -21.000, mean rev
77767/1500000: episode: 83, duration: 8.039s, episode steps: 946, steps per second: 118, episode reward: -21.000, mean rev
78653/1500000: episode: 84, duration: 7.564s, episode steps: 886, steps per second: 117, episode reward: -21.000, mean rev
79599/1500000: episode: 85, duration: 8.021s, episode steps: 946, steps per second: 118, episode reward: -21.000, mean rev
80442/1500000: episode: 86, duration: 7.331s, episode steps: 843, steps per second: 115, episode reward: -20.000, mean rev
81263/1500000: episode: 87, duration: 6.936s, episode steps: 821, steps per second: 118, episode reward: -21.000, mean rev
82209/1500000: episode: 88, duration: 8.042s, episode steps: 946, steps per second: 118, episode reward: -21.000, mean rev
83063/1500000: episode: 89, duration: 7.264s, episode steps: 854, steps per second: 118, episode reward: -21.000, mean rev
83905/1500000: episode: 90, duration: 7.094s, episode steps: 842, steps per second: 119, episode reward: -21.000, mean rev
85106/1500000: episode: 91, duration: 10.086s, episode steps: 1201, steps per second: 119, episode reward: -20.000, mean rev
86294/1500000: episode: 92, duration: 10.023s, episode steps: 1188, steps per second: 119, episode reward: -21.000, mean rev
87243/1500000: episode: 93, duration: 8.002s, episode steps: 949, steps per second: 119, episode reward: -21.000, mean rev

88311/1500000: episode: 94, duration: 9.076s, episode steps: 1068, steps per second: 118, episode reward: -21.000, mean 1
89352/1500000: episode: 95, duration: 8.760s, episode steps: 1041, steps per second: 119, episode reward: -19.000, mean 1
90767/1500000: episode: 96, duration: 12.043s, episode steps: 1415, steps per second: 117, episode reward: -19.000, mean 1
92038/1500000: episode: 97, duration: 10.904s, episode steps: 1271, steps per second: 117, episode reward: -19.000, mean 1
93376/1500000: episode: 98, duration: 11.224s, episode steps: 1338, steps per second: 119, episode reward: -18.000, mean 1
94816/1500000: episode: 99, duration: 12.130s, episode steps: 1440, steps per second: 119, episode reward: -18.000, mean 1
95894/1500000: episode: 100, duration: 8.995s, episode steps: 1078, steps per second: 120, episode reward: -19.000, mean 1
96809/1500000: episode: 101, duration: 7.686s, episode steps: 915, steps per second: 119, episode reward: -21.000, mean 1
98232/1500000: episode: 102, duration: 11.922s, episode steps: 1423, steps per second: 119, episode reward: -20.000, mean 1
99451/1500000: episode: 103, duration: 10.290s, episode steps: 1219, steps per second: 118, episode reward: -20.000, mean 1
101086/1500000: episode: 104, duration: 13.798s, episode steps: 1635, steps per second: 118, episode reward: -18.000, mean 1
102461/1500000: episode: 105, duration: 11.533s, episode steps: 1375, steps per second: 119, episode reward: -20.000, mean 1
103751/1500000: episode: 106, duration: 10.844s, episode steps: 1290, steps per second: 119, episode reward: -20.000, mean 1
105164/1500000: episode: 107, duration: 11.952s, episode steps: 1413, steps per second: 118, episode reward: -20.000, mean 1
106900/1500000: episode: 108, duration: 14.645s, episode steps: 1736, steps per second: 119, episode reward: -18.000, mean 1
108798/1500000: episode: 109, duration: 16.060s, episode steps: 1898, steps per second: 118, episode reward: -15.000, mean 1
110404/1500000: episode: 110, duration: 13.533s, episode steps: 1606, steps per second: 119, episode reward: -17.000, mean 1
112476/1500000: episode: 111, duration: 17.456s, episode steps: 2072, steps per second: 119, episode reward: -18.000, mean 1
114112/1500000: episode: 112, duration: 13.825s, episode steps: 1636, steps per second: 118, episode reward: -18.000, mean 1
116269/1500000: episode: 113, duration: 18.362s, episode steps: 2157, steps per second: 117, episode reward: -18.000, mean 1
117675/1500000: episode: 114, duration: 11.975s, episode steps: 1406, steps per second: 117, episode reward: -20.000, mean 1
119883/1500000: episode: 115, duration: 18.754s, episode steps: 2208, steps per second: 118, episode reward: -15.000, mean 1
122585/1500000: episode: 116, duration: 22.972s, episode steps: 2702, steps per second: 118, episode reward: -13.000, mean 1
125127/1500000: episode: 117, duration: 21.523s, episode steps: 2542, steps per second: 118, episode reward: -16.000, mean 1
126751/1500000: episode: 118, duration: 13.780s, episode steps: 1624, steps per second: 118, episode reward: -20.000, mean 1
128369/1500000: episode: 119, duration: 14.061s, episode steps: 1618, steps per second: 115, episode reward: -19.000, mean 1
130136/1500000: episode: 120, duration: 15.006s, episode steps: 1767, steps per second: 118, episode reward: -19.000, mean 1
131998/1500000: episode: 121, duration: 15.846s, episode steps: 1862, steps per second: 118, episode reward: -16.000, mean 1
133534/1500000: episode: 122, duration: 13.151s, episode steps: 1536, steps per second: 117, episode reward: -19.000, mean 1
134839/1500000: episode: 123, duration: 11.619s, episode steps: 1305, steps per second: 112, episode reward: -20.000, mean 1
136549/1500000: episode: 124, duration: 15.304s, episode steps: 1710, steps per second: 112, episode reward: -17.000, mean 1
138350/1500000: episode: 125, duration: 16.227s, episode steps: 1801, steps per second: 111, episode reward: -17.000, mean 1
140207/1500000: episode: 126, duration: 16.656s, episode steps: 1857, steps per second: 111, episode reward: -18.000, mean 1
142438/1500000: episode: 127, duration: 20.070s, episode steps: 2231, steps per second: 111, episode reward: -15.000, mean 1
144032/1500000: episode: 128, duration: 14.354s, episode steps: 1594, steps per second: 111, episode reward: -19.000, mean 1
146015/1500000: episode: 129, duration: 17.781s, episode steps: 1983, steps per second: 112, episode reward: -15.000, mean 1
147923/1500000: episode: 130, duration: 16.602s, episode steps: 1908, steps per second: 115, episode reward: -16.000, mean 1
149809/1500000: episode: 131, duration: 16.313s, episode steps: 1886, steps per second: 116, episode reward: -15.000, mean 1
151630/1500000: episode: 132, duration: 15.707s, episode steps: 1821, steps per second: 116, episode reward: -16.000, mean 1
153943/1500000: episode: 133, duration: 19.749s, episode steps: 2313, steps per second: 117, episode reward: -15.000, mean 1
155549/1500000: episode: 134, duration: 13.751s, episode steps: 1606, steps per second: 117, episode reward: -17.000, mean 1
157325/1500000: episode: 135, duration: 15.220s, episode steps: 1776, steps per second: 117, episode reward: -16.000, mean 1
159416/1500000: episode: 136, duration: 18.017s, episode steps: 2091, steps per second: 116, episode reward: -15.000, mean 1
161650/1500000: episode: 137, duration: 19.211s, episode steps: 2234, steps per second: 116, episode reward: -15.000, mean 1
163819/1500000: episode: 138, duration: 19.159s, episode steps: 2169, steps per second: 113, episode reward: -14.000, mean 1
165499/1500000: episode: 139, duration: 14.662s, episode steps: 1680, steps per second: 115, episode reward: -17.000, mean 1
167346/1500000: episode: 140, duration: 15.763s, episode steps: 1847, steps per second: 117, episode reward: -16.000, mean 1
168904/1500000: episode: 141, duration: 13.163s, episode steps: 1558, steps per second: 118, episode reward: -19.000, mean 1
170405/1500000: episode: 142, duration: 12.694s, episode steps: 1501, steps per second: 118, episode reward: -18.000, mean 1
172409/1500000: episode: 143, duration: 16.939s, episode steps: 2004, steps per second: 118, episode reward: -14.000, mean 1
173899/1500000: episode: 144, duration: 12.587s, episode steps: 1490, steps per second: 118, episode reward: -20.000, mean 1
176275/1500000: episode: 145, duration: 20.069s, episode steps: 2376, steps per second: 118, episode reward: -14.000, mean 1
178639/1500000: episode: 146, duration: 20.198s, episode steps: 2364, steps per second: 117, episode reward: -13.000, mean 1
180997/1500000: episode: 147, duration: 20.272s, episode steps: 2358, steps per second: 116, episode reward: -12.000, mean 1
182637/1500000: episode: 148, duration: 14.042s, episode steps: 1640, steps per second: 117, episode reward: -18.000, mean 1
184768/1500000: episode: 149, duration: 18.320s, episode steps: 2131, steps per second: 116, episode reward: -16.000, mean 1
186818/1500000: episode: 150, duration: 17.710s, episode steps: 2050, steps per second: 116, episode reward: -17.000, mean 1
188704/1500000: episode: 151, duration: 16.310s, episode steps: 1886, steps per second: 116, episode reward: -15.000, mean 1
191061/1500000: episode: 152, duration: 20.282s, episode steps: 2357, steps per second: 116, episode reward: -15.000, mean 1
193454/1500000: episode: 153, duration: 20.442s, episode steps: 2393, steps per second: 117, episode reward: -12.000, mean 1
195460/1500000: episode: 154, duration: 17.601s, episode steps: 2006, steps per second: 114, episode reward: -14.000, mean 1
197837/1500000: episode: 155, duration: 21.147s, episode steps: 2377, steps per second: 112, episode reward: -14.000, mean 1
199795/1500000: episode: 156, duration: 17.780s, episode steps: 1958, steps per second: 110, episode reward: -17.000, mean 1
202068/1500000: episode: 157, duration: 19.849s, episode steps: 2273, steps per second: 115, episode reward: -15.000, mean 1
204311/1500000: episode: 158, duration: 20.303s, episode steps: 2243, steps per second: 110, episode reward: -15.000, mean 1
206374/1500000: episode: 159, duration: 20.054s, episode steps: 2063, steps per second: 103, episode reward: -15.000, mean 1
208521/1500000: episode: 160, duration: 20.810s, episode steps: 2147, steps per second: 103, episode reward: -16.000, mean 1
210162/1500000: episode: 161, duration: 15.698s, episode steps: 1641, steps per second: 105, episode reward: -17.000, mean 1
212137/1500000: episode: 162, duration: 18.738s, episode steps: 1975, steps per second: 105, episode reward: -15.000, mean 1
213953/1500000: episode: 163, duration: 17.219s, episode steps: 1816, steps per second: 105, episode reward: -15.000, mean 1
216631/1500000: episode: 164, duration: 24.506s, episode steps: 2678, steps per second: 109, episode reward: -10.000, mean 1
219156/1500000: episode: 165, duration: 23.130s, episode steps: 2525, steps per second: 109, episode reward: -13.000, mean 1
221503/1500000: episode: 166, duration: 22.432s, episode steps: 2347, steps per second: 105, episode reward: -13.000, mean 1
223646/1500000: episode: 167, duration: 19.870s, episode steps: 2143, steps per second: 108, episode reward: -13.000, mean 1
225606/1500000: episode: 168, duration: 17.713s, episode steps: 1960, steps per second: 111, episode reward: -15.000, mean 1
227801/1500000: episode: 169, duration: 18.834s, episode steps: 2195, steps per second: 117, episode reward: -15.000, mean 1
230038/1500000: episode: 170, duration: 18.676s, episode steps: 2237, steps per second: 120, episode reward: -14.000, mean 1
231807/1500000: episode: 171, duration: 14.816s, episode steps: 1769, steps per second: 119, episode reward: -15.000, mean 1
233945/1500000: episode: 172, duration: 18.285s, episode steps: 2138, steps per second: 117, episode reward: -13.000, mean 1
235574/1500000: episode: 173, duration: 13.626s, episode steps: 1629, steps per second: 120, episode reward: -19.000, mean 1
237638/1500000: episode: 174, duration: 17.302s, episode steps: 2064, steps per second: 119, episode reward: -16.000, mean 1
239956/1500000: episode: 175, duration: 19.415s, episode steps: 2318, steps per second: 119, episode reward: -17.000, mean 1
242611/1500000: episode: 176, duration: 22.199s, episode steps: 2655, steps per second: 120, episode reward: -13.000, mean 1
245074/1500000: episode: 177, duration: 20.616s, episode steps: 2463, steps per second: 119, episode reward: -13.000, mean 1
247072/1500000: episode: 178, duration: 16.667s, episode steps: 1998, steps per second: 120, episode reward: -16.000, mean 1
248966/1500000: episode: 179, duration: 15.830s, episode steps: 1894, steps per second: 120, episode reward: -18.000, mean 1
251361/1500000: episode: 180, duration: 19.995s, episode steps: 2395, steps per second: 120, episode reward: -15.000, mean 1
254016/1500000: episode: 181, duration: 22.245s, episode steps: 2655, steps per second: 119, episode reward: -14.000, mean 1
256244/1500000: episode: 182, duration: 18.872s, episode steps: 2228, steps per second: 118, episode reward: -18.000, mean 1
258305/1500000: episode: 183, duration: 17.231s, episode steps: 2061, steps per second: 120, episode reward: -15.000, mean 1
260178/1500000: episode: 184, duration: 15.647s, episode steps: 1873, steps per second: 120, episode reward: -18.000, mean 1
262484/1500000: episode: 185, duration: 19.202s, episode steps: 2306, steps per second: 120, episode reward: -14.000, mean 1
265012/1500000: episode: 186, duration: 21.089s, episode steps: 2528, steps per second: 120, episode reward: -17.000, mean 1
267621/1500000: episode: 187, duration: 21.716s, episode steps: 2609, steps per second: 120, episode reward: -13.000, mean 1
270075/1500000: episode: 188, duration: 20.681s, episode steps: 2454, steps per second: 119, episode reward: -12.000, mean 1

271868/1500000: episode: 189, duration: 15.112s, episode steps: 1793, steps per second: 119, episode reward: -17.000, mean
274384/1500000: episode: 190, duration: 21.043s, episode steps: 2516, steps per second: 120, episode reward: -15.000, mean
276967/1500000: episode: 191, duration: 21.632s, episode steps: 2583, steps per second: 119, episode reward: -14.000, mean
279919/1500000: episode: 192, duration: 24.633s, episode steps: 2952, steps per second: 120, episode reward: -11.000, mean
282464/1500000: episode: 193, duration: 21.233s, episode steps: 2545, steps per second: 120, episode reward: -15.000, mean
284525/1500000: episode: 194, duration: 17.220s, episode steps: 2061, steps per second: 120, episode reward: -15.000, mean
287829/1500000: episode: 195, duration: 27.474s, episode steps: 3304, steps per second: 120, episode reward: -6.000, mean
290572/1500000: episode: 196, duration: 22.922s, episode steps: 2743, steps per second: 120, episode reward: -10.000, mean
292647/1500000: episode: 197, duration: 17.470s, episode steps: 2075, steps per second: 119, episode reward: -17.000, mean
294882/1500000: episode: 198, duration: 18.802s, episode steps: 2235, steps per second: 119, episode reward: -15.000, mean
297477/1500000: episode: 199, duration: 22.821s, episode steps: 2595, steps per second: 114, episode reward: -13.000, mean
300078/1500000: episode: 200, duration: 22.965s, episode steps: 2601, steps per second: 113, episode reward: -11.000, mean
302051/1500000: episode: 201, duration: 17.375s, episode steps: 1973, steps per second: 114, episode reward: -16.000, mean
304296/1500000: episode: 202, duration: 19.847s, episode steps: 2245, steps per second: 113, episode reward: -18.000, mean
305957/1500000: episode: 203, duration: 14.722s, episode steps: 1661, steps per second: 113, episode reward: -18.000, mean
308382/1500000: episode: 204, duration: 21.702s, episode steps: 2425, steps per second: 112, episode reward: -14.000, mean
310998/1500000: episode: 205, duration: 22.388s, episode steps: 2616, steps per second: 117, episode reward: -15.000, mean
313640/1500000: episode: 206, duration: 22.872s, episode steps: 2642, steps per second: 116, episode reward: -13.000, mean
316396/1500000: episode: 207, duration: 23.772s, episode steps: 2756, steps per second: 116, episode reward: -11.000, mean
319439/1500000: episode: 208, duration: 26.060s, episode steps: 3043, steps per second: 117, episode reward: -9.000, mean
322073/1500000: episode: 209, duration: 22.711s, episode steps: 2634, steps per second: 116, episode reward: -13.000, mean
324780/1500000: episode: 210, duration: 23.537s, episode steps: 2707, steps per second: 115, episode reward: -14.000, mean
326756/1500000: episode: 211, duration: 16.959s, episode steps: 1976, steps per second: 117, episode reward: -17.000, mean
329750/1500000: episode: 212, duration: 25.490s, episode steps: 2994, steps per second: 117, episode reward: -8.000, mean
333203/1500000: episode: 213, duration: 29.271s, episode steps: 3453, steps per second: 118, episode reward: -4.000, mean
335410/1500000: episode: 214, duration: 18.716s, episode steps: 2207, steps per second: 118, episode reward: -13.000, mean
337769/1500000: episode: 215, duration: 20.192s, episode steps: 2359, steps per second: 117, episode reward: -15.000, mean
340544/1500000: episode: 216, duration: 23.724s, episode steps: 2775, steps per second: 117, episode reward: -8.000, mean
342905/1500000: episode: 217, duration: 20.494s, episode steps: 2361, steps per second: 115, episode reward: -14.000, mean
346141/1500000: episode: 218, duration: 27.698s, episode steps: 3236, steps per second: 117, episode reward: -6.000, mean
348700/1500000: episode: 219, duration: 21.833s, episode steps: 2559, steps per second: 117, episode reward: -9.000, mean
350849/1500000: episode: 220, duration: 18.424s, episode steps: 2149, steps per second: 117, episode reward: -16.000, mean
353570/1500000: episode: 221, duration: 23.875s, episode steps: 2721, steps per second: 114, episode reward: -12.000, mean
356365/1500000: episode: 222, duration: 24.778s, episode steps: 2795, steps per second: 113, episode reward: -9.000, mean
358709/1500000: episode: 223, duration: 20.555s, episode steps: 2344, steps per second: 114, episode reward: -12.000, mean
361791/1500000: episode: 224, duration: 26.614s, episode steps: 3082, steps per second: 116, episode reward: -10.000, mean
364208/1500000: episode: 225, duration: 22.891s, episode steps: 2417, steps per second: 106, episode reward: -14.000, mean
367295/1500000: episode: 226, duration: 29.867s, episode steps: 3087, steps per second: 103, episode reward: -6.000, mean
370708/1500000: episode: 227, duration: 32.575s, episode steps: 3413, steps per second: 105, episode reward: -3.000, mean
373662/1500000: episode: 228, duration: 27.636s, episode steps: 2954, steps per second: 107, episode reward: -6.000, mean
376795/1500000: episode: 229, duration: 28.439s, episode steps: 3133, steps per second: 110, episode reward: 4.000, mean
378733/1500000: episode: 230, duration: 17.438s, episode steps: 1938, steps per second: 111, episode reward: -15.000, mean
381476/1500000: episode: 231, duration: 25.896s, episode steps: 2743, steps per second: 106, episode reward: -7.000, mean
383976/1500000: episode: 232, duration: 22.993s, episode steps: 2500, steps per second: 109, episode reward: -7.000, mean
386003/1500000: episode: 233, duration: 18.171s, episode steps: 2027, steps per second: 112, episode reward: -13.000, mean
388297/1500000: episode: 234, duration: 20.181s, episode steps: 2294, steps per second: 114, episode reward: -15.000, mean
390906/1500000: episode: 235, duration: 21.923s, episode steps: 2609, steps per second: 119, episode reward: -10.000, mean
393503/1500000: episode: 236, duration: 21.803s, episode steps: 2597, steps per second: 119, episode reward: -11.000, mean
396065/1500000: episode: 237, duration: 21.634s, episode steps: 2562, steps per second: 118, episode reward: -14.000, mean
399555/1500000: episode: 238, duration: 29.391s, episode steps: 3490, steps per second: 119, episode reward: -4.000, mean
402294/1500000: episode: 239, duration: 22.982s, episode steps: 2739, steps per second: 119, episode reward: -11.000, mean
405122/1500000: episode: 240, duration: 23.686s, episode steps: 2828, steps per second: 119, episode reward: -12.000, mean
407360/1500000: episode: 241, duration: 18.725s, episode steps: 2238, steps per second: 120, episode reward: -18.000, mean
409693/1500000: episode: 242, duration: 19.597s, episode steps: 2333, steps per second: 119, episode reward: -16.000, mean
412713/1500000: episode: 243, duration: 25.450s, episode steps: 3020, steps per second: 119, episode reward: -12.000, mean
416256/1500000: episode: 244, duration: 29.886s, episode steps: 3543, steps per second: 119, episode reward: -8.000, mean
419680/1500000: episode: 245, duration: 28.672s, episode steps: 3424, steps per second: 119, episode reward: -9.000, mean
422398/1500000: episode: 246, duration: 22.757s, episode steps: 2718, steps per second: 119, episode reward: -10.000, mean
425869/1500000: episode: 247, duration: 29.022s, episode steps: 3471, steps per second: 120, episode reward: -9.000, mean
429127/1500000: episode: 248, duration: 27.182s, episode steps: 3258, steps per second: 120, episode reward: -7.000, mean
432661/1500000: episode: 249, duration: 29.726s, episode steps: 3534, steps per second: 119, episode reward: -10.000, mean
435665/1500000: episode: 250, duration: 25.193s, episode steps: 3004, steps per second: 119, episode reward: -7.000, mean
438514/1500000: episode: 251, duration: 23.786s, episode steps: 2849, steps per second: 120, episode reward: -12.000, mean
441095/1500000: episode: 252, duration: 21.608s, episode steps: 2581, steps per second: 119, episode reward: -16.000, mean
443503/1500000: episode: 253, duration: 20.122s, episode steps: 2408, steps per second: 120, episode reward: -13.000, mean
446814/1500000: episode: 254, duration: 27.719s, episode steps: 3311, steps per second: 119, episode reward: -6.000, mean
448998/1500000: episode: 255, duration: 18.316s, episode steps: 2184, steps per second: 119, episode reward: -15.000, mean
451884/1500000: episode: 256, duration: 24.461s, episode steps: 2886, steps per second: 118, episode reward: -8.000, mean
454537/1500000: episode: 257, duration: 22.307s, episode steps: 2653, steps per second: 119, episode reward: -10.000, mean
457489/1500000: episode: 258, duration: 25.620s, episode steps: 2952, steps per second: 115, episode reward: -10.000, mean
461237/1500000: episode: 259, duration: 33.172s, episode steps: 3748, steps per second: 113, episode reward: -4.000, mean
464494/1500000: episode: 260, duration: 28.817s, episode steps: 3257, steps per second: 113, episode reward: 8.000, mean
468036/1500000: episode: 261, duration: 31.370s, episode steps: 3542, steps per second: 113, episode reward: -9.000, mean
471697/1500000: episode: 262, duration: 31.425s, episode steps: 3661, steps per second: 117, episode reward: -9.000, mean
475300/1500000: episode: 263, duration: 31.009s, episode steps: 3603, steps per second: 116, episode reward: -5.000, mean
477865/1500000: episode: 264, duration: 22.139s, episode steps: 2565, steps per second: 116, episode reward: -14.000, mean
480873/1500000: episode: 265, duration: 25.902s, episode steps: 3008, steps per second: 116, episode reward: -9.000, mean
484618/1500000: episode: 266, duration: 32.441s, episode steps: 3745, steps per second: 115, episode reward: -2.000, mean
487866/1500000: episode: 267, duration: 28.301s, episode steps: 3248, steps per second: 115, episode reward: 5.000, mean
490888/1500000: episode: 268, duration: 25.550s, episode steps: 3022, steps per second: 118, episode reward: -6.000, mean
493193/1500000: episode: 269, duration: 19.483s, episode steps: 2305, steps per second: 118, episode reward: -12.000, mean
496592/1500000: episode: 270, duration: 28.828s, episode steps: 3399, steps per second: 118, episode reward: 2.000, mean
500059/1500000: episode: 271, duration: 29.631s, episode steps: 3467, steps per second: 117, episode reward: 2.000, mean
503575/1500000: episode: 272, duration: 30.259s, episode steps: 3516, steps per second: 116, episode reward: -1.000, mean
506507/1500000: episode: 273, duration: 25.311s, episode steps: 2932, steps per second: 116, episode reward: 8.000, mean
509200/1500000: episode: 274, duration: 23.228s, episode steps: 2693, steps per second: 116, episode reward: -11.000, mean
512079/1500000: episode: 275, duration: 24.914s, episode steps: 2879, steps per second: 116, episode reward: -9.000, mean
515081/1500000: episode: 276, duration: 26.777s, episode steps: 3002, steps per second: 112, episode reward: -5.000, mean
517896/1500000: episode: 277, duration: 24.603s, episode steps: 2815, steps per second: 114, episode reward: -12.000, mean
520751/1500000: episode: 278, duration: 27.850s, episode steps: 2855, steps per second: 103, episode reward: -9.000, mean
523826/1500000: episode: 279, duration: 29.962s, episode steps: 3075, steps per second: 103, episode reward: -8.000, mean
527079/1500000: episode: 280, duration: 31.022s, episode steps: 3253, steps per second: 105, episode reward: 7.000, mean
529720/1500000: episode: 281, duration: 24.563s, episode steps: 2641, steps per second: 108, episode reward: 9.000, mean
532979/1500000: episode: 282, duration: 30.741s, episode steps: 3259, steps per second: 106, episode reward: 3.000, mean
536193/1500000: episode: 283, duration: 27.515s, episode steps: 3214, steps per second: 117, episode reward: -1.000, mean

539035/1500000: episode: 284, duration: 24.206s, episode steps: 2842, steps per second: 117, episode reward: 8.000, mean 1
541472/1500000: episode: 285, duration: 20.405s, episode steps: 2437, steps per second: 119, episode reward: -8.000, mean
544301/1500000: episode: 286, duration: 23.796s, episode steps: 2829, steps per second: 119, episode reward: -8.000, mean
546956/1500000: episode: 287, duration: 22.334s, episode steps: 2655, steps per second: 119, episode reward: -11.000, mean
550733/1500000: episode: 288, duration: 31.800s, episode steps: 3777, steps per second: 119, episode reward: 1.000, mean 1
553408/1500000: episode: 289, duration: 22.511s, episode steps: 2675, steps per second: 119, episode reward: -13.000, mean
556073/1500000: episode: 290, duration: 22.707s, episode steps: 2665, steps per second: 117, episode reward: -9.000, mean
558530/1500000: episode: 291, duration: 20.906s, episode steps: 2457, steps per second: 118, episode reward: -15.000, mean
561425/1500000: episode: 292, duration: 28.625s, episode steps: 2895, steps per second: 101, episode reward: -7.000, mean
564550/1500000: episode: 293, duration: 26.385s, episode steps: 3125, steps per second: 118, episode reward: -7.000, mean
567613/1500000: episode: 294, duration: 25.910s, episode steps: 3063, steps per second: 118, episode reward: 9.000, mean 1
571143/1500000: episode: 295, duration: 29.729s, episode steps: 3530, steps per second: 119, episode reward: -7.000, mean
574145/1500000: episode: 296, duration: 25.313s, episode steps: 3002, steps per second: 119, episode reward: 10.000, mean
577339/1500000: episode: 297, duration: 26.756s, episode steps: 3194, steps per second: 119, episode reward: -6.000, mean
581266/1500000: episode: 298, duration: 33.031s, episode steps: 3927, steps per second: 119, episode reward: 1.000, mean 1
584277/1500000: episode: 299, duration: 25.453s, episode steps: 3011, steps per second: 118, episode reward: -8.000, mean
587647/1500000: episode: 300, duration: 28.739s, episode steps: 3370, steps per second: 117, episode reward: -1.000, mean
591688/1500000: episode: 301, duration: 34.490s, episode steps: 4041, steps per second: 117, episode reward: -8.000, mean
594708/1500000: episode: 302, duration: 26.943s, episode steps: 3020, steps per second: 112, episode reward: 7.000, mean 1
597902/1500000: episode: 303, duration: 28.778s, episode steps: 3194, steps per second: 111, episode reward: -10.000, mean
601469/1500000: episode: 304, duration: 32.253s, episode steps: 3567, steps per second: 111, episode reward: -4.000, mean
604553/1500000: episode: 305, duration: 27.719s, episode steps: 3084, steps per second: 111, episode reward: -9.000, mean
607640/1500000: episode: 306, duration: 27.023s, episode steps: 3087, steps per second: 114, episode reward: -8.000, mean
610737/1500000: episode: 307, duration: 27.408s, episode steps: 3097, steps per second: 113, episode reward: -8.000, mean
613075/1500000: episode: 308, duration: 20.466s, episode steps: 2338, steps per second: 114, episode reward: 15.000, mean
615671/1500000: episode: 309, duration: 22.811s, episode steps: 2596, steps per second: 114, episode reward: -16.000, mean
619630/1500000: episode: 310, duration: 34.897s, episode steps: 3959, steps per second: 113, episode reward: 3.000, mean 1
623234/1500000: episode: 311, duration: 31.675s, episode steps: 3604, steps per second: 114, episode reward: -8.000, mean
626761/1500000: episode: 312, duration: 30.425s, episode steps: 3527, steps per second: 116, episode reward: -5.000, mean
630912/1500000: episode: 313, duration: 35.965s, episode steps: 4151, steps per second: 115, episode reward: 1.000, mean 1
633913/1500000: episode: 314, duration: 26.052s, episode steps: 3001, steps per second: 115, episode reward: 8.000, mean 1
636941/1500000: episode: 315, duration: 26.283s, episode steps: 3028, steps per second: 115, episode reward: 5.000, mean 1
640149/1500000: episode: 316, duration: 27.909s, episode steps: 3208, steps per second: 115, episode reward: -7.000, mean
643683/1500000: episode: 317, duration: 30.943s, episode steps: 3534, steps per second: 114, episode reward: 7.000, mean 1
645690/1500000: episode: 318, duration: 17.531s, episode steps: 2007, steps per second: 114, episode reward: -16.000, mean
650228/1500000: episode: 319, duration: 40.743s, episode steps: 4538, steps per second: 111, episode reward: 1.000, mean 1
653742/1500000: episode: 320, duration: 31.764s, episode steps: 3514, steps per second: 111, episode reward: -5.000, mean
657695/1500000: episode: 321, duration: 38.532s, episode steps: 3953, steps per second: 103, episode reward: -1.000, mean
661190/1500000: episode: 322, duration: 33.796s, episode steps: 3495, steps per second: 103, episode reward: 1.000, mean 1
663480/1500000: episode: 323, duration: 21.532s, episode steps: 2290, steps per second: 106, episode reward: 16.000, mean
667380/1500000: episode: 324, duration: 37.100s, episode steps: 3900, steps per second: 105, episode reward: -1.000, mean
670032/1500000: episode: 325, duration: 23.962s, episode steps: 2652, steps per second: 111, episode reward: 9.000, mean 1
673872/1500000: episode: 326, duration: 33.042s, episode steps: 3840, steps per second: 116, episode reward: 1.000, mean 1
677145/1500000: episode: 327, duration: 27.911s, episode steps: 3273, steps per second: 117, episode reward: 8.000, mean 1
680235/1500000: episode: 328, duration: 26.081s, episode steps: 3090, steps per second: 118, episode reward: 4.000, mean 1
683096/1500000: episode: 329, duration: 24.295s, episode steps: 2861, steps per second: 118, episode reward: 3.000, mean 1
686560/1500000: episode: 330, duration: 29.433s, episode steps: 3464, steps per second: 118, episode reward: 5.000, mean 1
689928/1500000: episode: 331, duration: 28.801s, episode steps: 3368, steps per second: 117, episode reward: 5.000, mean 1
693239/1500000: episode: 332, duration: 28.830s, episode steps: 3311, steps per second: 115, episode reward: 4.000, mean 1
697557/1500000: episode: 333, duration: 38.005s, episode steps: 4318, steps per second: 114, episode reward: -2.000, mean
701102/1500000: episode: 334, duration: 30.808s, episode steps: 3545, steps per second: 115, episode reward: 4.000, mean 1
704531/1500000: episode: 335, duration: 29.792s, episode steps: 3429, steps per second: 115, episode reward: 4.000, mean 1
708207/1500000: episode: 336, duration: 31.983s, episode steps: 3676, steps per second: 115, episode reward: 2.000, mean 1
711402/1500000: episode: 337, duration: 27.708s, episode steps: 3195, steps per second: 115, episode reward: 7.000, mean 1
713867/1500000: episode: 338, duration: 21.230s, episode steps: 2465, steps per second: 116, episode reward: 13.000, mean
717146/1500000: episode: 339, duration: 28.410s, episode steps: 3279, steps per second: 115, episode reward: -6.000, mean
720339/1500000: episode: 340, duration: 27.637s, episode steps: 3193, steps per second: 116, episode reward: 5.000, mean 1
723992/1500000: episode: 341, duration: 31.699s, episode steps: 3653, steps per second: 115, episode reward: -4.000, mean
727482/1500000: episode: 342, duration: 30.257s, episode steps: 3490, steps per second: 115, episode reward: -3.000, mean
731668/1500000: episode: 343, duration: 37.679s, episode steps: 4186, steps per second: 111, episode reward: -2.000, mean
734251/1500000: episode: 344, duration: 23.898s, episode steps: 2583, steps per second: 108, episode reward: -11.000, mean
737875/1500000: episode: 345, duration: 32.988s, episode steps: 3624, steps per second: 110, episode reward: 4.000, mean 1
740381/1500000: episode: 346, duration: 22.654s, episode steps: 2506, steps per second: 111, episode reward: -13.000, mean
743477/1500000: episode: 347, duration: 27.231s, episode steps: 3096, steps per second: 114, episode reward: -9.000, mean
746341/1500000: episode: 348, duration: 25.537s, episode steps: 2864, steps per second: 112, episode reward: -12.000, mean
750189/1500000: episode: 349, duration: 34.168s, episode steps: 3848, steps per second: 113, episode reward: -3.000, mean 1
753266/1500000: episode: 350, duration: 27.333s, episode steps: 3077, steps per second: 113, episode reward: 5.000, mean 1
756112/1500000: episode: 351, duration: 25.298s, episode steps: 2846, steps per second: 113, episode reward: 9.000, mean 1
759900/1500000: episode: 352, duration: 33.608s, episode steps: 3788, steps per second: 113, episode reward: -4.000, mean
763881/1500000: episode: 353, duration: 34.546s, episode steps: 3981, steps per second: 115, episode reward: -4.000, mean
767285/1500000: episode: 354, duration: 29.846s, episode steps: 3404, steps per second: 114, episode reward: 2.000, mean 1
770627/1500000: episode: 355, duration: 29.403s, episode steps: 3342, steps per second: 114, episode reward: 3.000, mean 1
773333/1500000: episode: 356, duration: 23.808s, episode steps: 2706, steps per second: 114, episode reward: 13.000, mean
776153/1500000: episode: 357, duration: 24.824s, episode steps: 2820, steps per second: 114, episode reward: 10.000, mean
779182/1500000: episode: 358, duration: 26.705s, episode steps: 3029, steps per second: 113, episode reward: 7.000, mean 1
782125/1500000: episode: 359, duration: 26.244s, episode steps: 2943, steps per second: 112, episode reward: 5.000, mean 1
785416/1500000: episode: 360, duration: 29.398s, episode steps: 3291, steps per second: 112, episode reward: 2.000, mean 1
788156/1500000: episode: 361, duration: 24.916s, episode steps: 2740, steps per second: 110, episode reward: 9.000, mean 1
791422/1500000: episode: 362, duration: 30.275s, episode steps: 3266, steps per second: 108, episode reward: 3.000, mean 1
793782/1500000: episode: 363, duration: 23.145s, episode steps: 2360, steps per second: 102, episode reward: 11.000, mean
796973/1500000: episode: 364, duration: 31.114s, episode steps: 3191, steps per second: 103, episode reward: 3.000, mean 1
800651/1500000: episode: 365, duration: 35.012s, episode steps: 3678, steps per second: 105, episode reward: -3.000, mean
803238/1500000: episode: 366, duration: 25.527s, episode steps: 2587, steps per second: 101, episode reward: 11.000, mean
806380/1500000: episode: 367, duration: 29.165s, episode steps: 3142, steps per second: 108, episode reward: 6.000, mean 1
809461/1500000: episode: 368, duration: 26.654s, episode steps: 3081, steps per second: 116, episode reward: -11.000, mean
812209/1500000: episode: 369, duration: 23.761s, episode steps: 2748, steps per second: 116, episode reward: 9.000, mean 1
815903/1500000: episode: 370, duration: 32.409s, episode steps: 3694, steps per second: 114, episode reward: 1.000, mean 1
818312/1500000: episode: 371, duration: 20.924s, episode steps: 2409, steps per second: 115, episode reward: 13.000, mean
820532/1500000: episode: 372, duration: 19.362s, episode steps: 2220, steps per second: 115, episode reward: 16.000, mean
823742/1500000: episode: 373, duration: 27.992s, episode steps: 3210, steps per second: 115, episode reward: 9.000, mean 1
826153/1500000: episode: 374, duration: 20.781s, episode steps: 2411, steps per second: 116, episode reward: 11.000, mean
828831/1500000: episode: 375, duration: 22.793s, episode steps: 2678, steps per second: 117, episode reward: 12.000, mean
831136/1500000: episode: 376, duration: 19.608s, episode steps: 2305, steps per second: 118, episode reward: 13.000, mean
834511/1500000: episode: 377, duration: 28.623s, episode steps: 3375, steps per second: 118, episode reward: 4.000, mean 1
837600/1500000: episode: 378, duration: 26.570s, episode steps: 3089, steps per second: 116, episode reward: 3.000, mean 1

841162/1500000:	episode: 379, duration: 30.317s, episode steps: 3562, steps per second: 117, episode reward: 1.000, mean
844647/1500000:	episode: 380, duration: 29.500s, episode steps: 3485, steps per second: 118, episode reward: 3.000, mean
848294/1500000:	episode: 381, duration: 30.780s, episode steps: 3647, steps per second: 118, episode reward: 5.000, mean
851233/1500000:	episode: 382, duration: 25.167s, episode steps: 2939, steps per second: 117, episode reward: 9.000, mean
854115/1500000:	episode: 383, duration: 24.441s, episode steps: 2882, steps per second: 118, episode reward: 9.000, mean
856848/1500000:	episode: 384, duration: 23.212s, episode steps: 2733, steps per second: 118, episode reward: 5.000, mean
860065/1500000:	episode: 385, duration: 27.394s, episode steps: 3217, steps per second: 117, episode reward: -1.000, mean
863428/1500000:	episode: 386, duration: 28.509s, episode steps: 3363, steps per second: 118, episode reward: 3.000, mean
866287/1500000:	episode: 387, duration: 24.761s, episode steps: 2859, steps per second: 115, episode reward: 5.000, mean
869550/1500000:	episode: 388, duration: 29.230s, episode steps: 3263, steps per second: 112, episode reward: 2.000, mean
872001/1500000:	episode: 389, duration: 22.075s, episode steps: 2451, steps per second: 111, episode reward: 10.000, mean
874970/1500000:	episode: 390, duration: 26.884s, episode steps: 2969, steps per second: 110, episode reward: 7.000, mean
878369/1500000:	episode: 391, duration: 30.137s, episode steps: 3399, steps per second: 113, episode reward: -2.000, mean
881043/1500000:	episode: 392, duration: 23.282s, episode steps: 2674, steps per second: 115, episode reward: 8.000, mean
884212/1500000:	episode: 393, duration: 27.966s, episode steps: 3169, steps per second: 113, episode reward: 6.000, mean
886334/1500000:	episode: 394, duration: 18.668s, episode steps: 2122, steps per second: 114, episode reward: 17.000, mean
889507/1500000:	episode: 395, duration: 27.986s, episode steps: 3173, steps per second: 113, episode reward: 5.000, mean
891977/1500000:	episode: 396, duration: 21.693s, episode steps: 2470, steps per second: 114, episode reward: 13.000, mean
895145/1500000:	episode: 397, duration: 27.860s, episode steps: 3168, steps per second: 114, episode reward: -6.000, mean
899205/1500000:	episode: 398, duration: 34.661s, episode steps: 4060, steps per second: 117, episode reward: -1.000, mean
902138/1500000:	episode: 399, duration: 25.076s, episode steps: 2933, steps per second: 117, episode reward: 11.000, mean
905746/1500000:	episode: 400, duration: 31.014s, episode steps: 3608, steps per second: 116, episode reward: -1.000, mean
908584/1500000:	episode: 401, duration: 25.097s, episode steps: 2838, steps per second: 113, episode reward: 7.000, mean
911567/1500000:	episode: 402, duration: 25.820s, episode steps: 2983, steps per second: 116, episode reward: 5.000, mean
914557/1500000:	episode: 403, duration: 25.922s, episode steps: 2990, steps per second: 115, episode reward: 8.000, mean
917184/1500000:	episode: 404, duration: 22.768s, episode steps: 2627, steps per second: 115, episode reward: 11.000, mean
919505/1500000:	episode: 405, duration: 20.406s, episode steps: 2321, steps per second: 114, episode reward: 13.000, mean
923473/1500000:	episode: 406, duration: 35.155s, episode steps: 3968, steps per second: 113, episode reward: 1.000, mean
926215/1500000:	episode: 407, duration: 24.263s, episode steps: 2742, steps per second: 113, episode reward: 7.000, mean
929608/1500000:	episode: 408, duration: 31.705s, episode steps: 3393, steps per second: 107, episode reward: -3.000, mean
932689/1500000:	episode: 409, duration: 29.855s, episode steps: 3081, steps per second: 103, episode reward: -5.000, mean
935984/1500000:	episode: 410, duration: 31.609s, episode steps: 3295, steps per second: 104, episode reward: 1.000, mean
939080/1500000:	episode: 411, duration: 28.244s, episode steps: 3096, steps per second: 110, episode reward: 7.000, mean
941637/1500000:	episode: 412, duration: 24.666s, episode steps: 2557, steps per second: 104, episode reward: 11.000, mean
944770/1500000:	episode: 413, duration: 27.909s, episode steps: 3133, steps per second: 112, episode reward: 6.000, mean
948416/1500000:	episode: 414, duration: 31.023s, episode steps: 3646, steps per second: 118, episode reward: -4.000, mean
951862/1500000:	episode: 415, duration: 29.327s, episode steps: 3446, steps per second: 118, episode reward: -5.000, mean
955128/1500000:	episode: 416, duration: 28.137s, episode steps: 3266, steps per second: 116, episode reward: -1.000, mean
958281/1500000:	episode: 417, duration: 26.932s, episode steps: 3153, steps per second: 117, episode reward: 2.000, mean
960580/1500000:	episode: 418, duration: 19.648s, episode steps: 2299, steps per second: 117, episode reward: 12.000, mean
963480/1500000:	episode: 419, duration: 24.701s, episode steps: 2900, steps per second: 117, episode reward: 7.000, mean
966784/1500000:	episode: 420, duration: 28.154s, episode steps: 3304, steps per second: 117, episode reward: 1.000, mean
969400/1500000:	episode: 421, duration: 22.332s, episode steps: 2616, steps per second: 117, episode reward: 12.000, mean
972785/1500000:	episode: 422, duration: 28.846s, episode steps: 3385, steps per second: 117, episode reward: 6.000, mean
975415/1500000:	episode: 423, duration: 22.353s, episode steps: 2630, steps per second: 118, episode reward: 11.000, mean
978500/1500000:	episode: 424, duration: 26.735s, episode steps: 3085, steps per second: 115, episode reward: 9.000, mean
981451/1500000:	episode: 425, duration: 25.069s, episode steps: 2951, steps per second: 118, episode reward: 7.000, mean
985208/1500000:	episode: 426, duration: 31.996s, episode steps: 3757, steps per second: 117, episode reward: 1.000, mean
988350/1500000:	episode: 427, duration: 26.852s, episode steps: 3142, steps per second: 117, episode reward: 2.000, mean
990946/1500000:	episode: 428, duration: 22.027s, episode steps: 2596, steps per second: 118, episode reward: -10.000, mean
994199/1500000:	episode: 429, duration: 27.672s, episode steps: 3253, steps per second: 118, episode reward: -3.000, mean
997144/1500000:	episode: 430, duration: 24.597s, episode steps: 2945, steps per second: 120, episode reward: 8.000, mean
999444/1500000:	episode: 431, duration: 19.102s, episode steps: 2300, steps per second: 120, episode reward: 13.000, mean
1002449/1500000:	episode: 432, duration: 25.121s, episode steps: 3005, steps per second: 120, episode reward: 6.000, mean
1005601/1500000:	episode: 433, duration: 27.608s, episode steps: 3152, steps per second: 114, episode reward: 2.000, mean
1008422/1500000:	episode: 434, duration: 25.138s, episode steps: 2821, steps per second: 112, episode reward: 7.000, mean
1011608/1500000:	episode: 435, duration: 28.298s, episode steps: 3186, steps per second: 113, episode reward: 7.000, mean
1014124/1500000:	episode: 436, duration: 22.639s, episode steps: 2516, steps per second: 111, episode reward: 11.000, mean
1016402/1500000:	episode: 437, duration: 20.251s, episode steps: 2278, steps per second: 112, episode reward: 15.000, mean
1019107/1500000:	episode: 438, duration: 23.124s, episode steps: 2705, steps per second: 117, episode reward: 12.000, mean
1022149/1500000:	episode: 439, duration: 26.122s, episode steps: 3042, steps per second: 116, episode reward: 5.000, mean
1025766/1500000:	episode: 440, duration: 31.146s, episode steps: 3617, steps per second: 116, episode reward: -2.000, mean
1029187/1500000:	episode: 441, duration: 29.380s, episode steps: 3421, steps per second: 116, episode reward: 1.000, mean
1031131/1500000:	episode: 442, duration: 16.992s, episode steps: 1944, steps per second: 114, episode reward: 17.000, mean
1034415/1500000:	episode: 443, duration: 27.843s, episode steps: 3284, steps per second: 118, episode reward: 3.000, mean
1037103/1500000:	episode: 444, duration: 22.871s, episode steps: 2688, steps per second: 118, episode reward: 10.000, mean
1039985/1500000:	episode: 445, duration: 24.504s, episode steps: 2882, steps per second: 118, episode reward: 6.000, mean
1042563/1500000:	episode: 446, duration: 22.125s, episode steps: 2578, steps per second: 117, episode reward: 9.000, mean
1044968/1500000:	episode: 447, duration: 20.715s, episode steps: 2405, steps per second: 116, episode reward: 13.000, mean
1047760/1500000:	episode: 448, duration: 24.188s, episode steps: 2792, steps per second: 115, episode reward: 10.000, mean
1051062/1500000:	episode: 449, duration: 28.872s, episode steps: 3302, steps per second: 114, episode reward: 5.000, mean
1054602/1500000:	episode: 450, duration: 30.481s, episode steps: 3540, steps per second: 116, episode reward: 7.000, mean
1057976/1500000:	episode: 451, duration: 28.973s, episode steps: 3374, steps per second: 116, episode reward: 4.000, mean
1060983/1500000:	episode: 452, duration: 26.591s, episode steps: 3007, steps per second: 113, episode reward: 5.000, mean
1064569/1500000:	episode: 453, duration: 31.402s, episode steps: 3586, steps per second: 114, episode reward: -1.000, mean
1067382/1500000:	episode: 454, duration: 26.710s, episode steps: 2813, steps per second: 105, episode reward: 7.000, mean
1070368/1500000:	episode: 455, duration: 28.695s, episode steps: 2986, steps per second: 104, episode reward: 11.000, mean
1073428/1500000:	episode: 456, duration: 28.841s, episode steps: 3060, steps per second: 106, episode reward: 8.000, mean
1076473/1500000:	episode: 457, duration: 28.016s, episode steps: 3045, steps per second: 109, episode reward: 3.000, mean
1078954/1500000:	episode: 458, duration: 23.466s, episode steps: 2481, steps per second: 106, episode reward: 14.000, mean
1080978/1500000:	episode: 459, duration: 18.447s, episode steps: 2024, steps per second: 110, episode reward: 16.000, mean
1083641/1500000:	episode: 460, duration: 22.375s, episode steps: 2663, steps per second: 119, episode reward: 8.000, mean
1087394/1500000:	episode: 461, duration: 31.629s, episode steps: 3753, steps per second: 119, episode reward: -1.000, mean
1090450/1500000:	episode: 462, duration: 25.474s, episode steps: 3056, steps per second: 120, episode reward: 5.000, mean
1093620/1500000:	episode: 463, duration: 26.641s, episode steps: 3170, steps per second: 119, episode reward: 4.000, mean
1096574/1500000:	episode: 464, duration: 24.725s, episode steps: 2954, steps per second: 119, episode reward: 8.000, mean
1098670/1500000:	episode: 465, duration: 17.484s, episode steps: 2096, steps per second: 120, episode reward: 15.000, mean
1101592/1500000:	episode: 466, duration: 24.450s, episode steps: 2922, steps per second: 120, episode reward: 6.000, mean
1103269/1500000:	episode: 467, duration: 14.051s, episode steps: 1677, steps per second: 119, episode reward: 20.000, mean
1106538/1500000:	episode: 468, duration: 27.380s, episode steps: 3269, steps per second: 119, episode reward: -1.000, mean
1108857/1500000:	episode: 469, duration: 19.557s, episode steps: 2319, steps per second: 119, episode reward: 15.000, mean
1111705/1500000:	episode: 470, duration: 23.855s, episode steps: 2848, steps per second: 119, episode reward: 3.000, mean
1114054/1500000:	episode: 471, duration: 19.661s, episode steps: 2349, steps per second: 119, episode reward: 13.000, mean
1116852/1500000:	episode: 472, duration: 23.427s, episode steps: 2798, steps per second: 119, episode reward: -6.000, mean

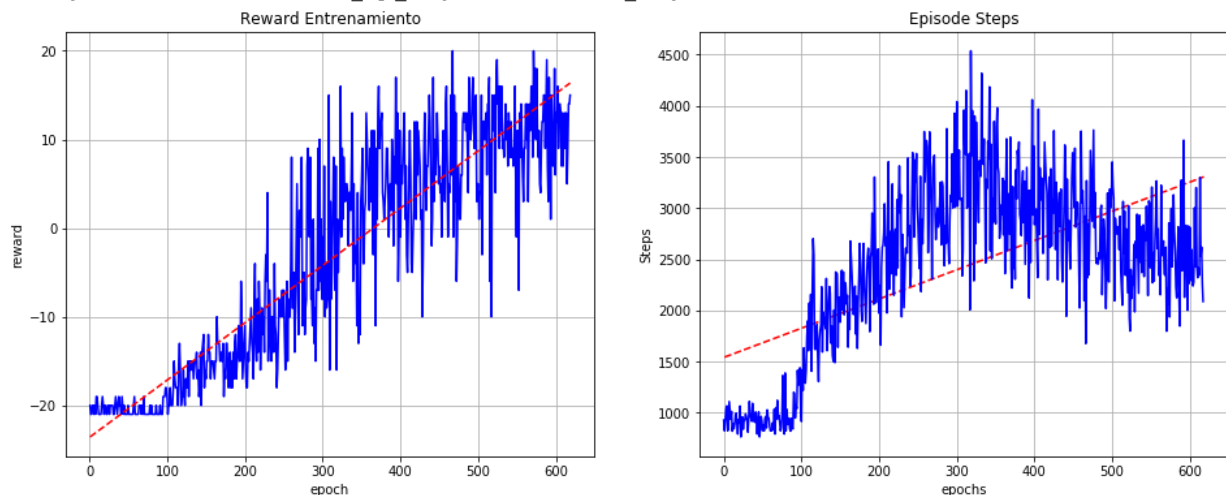
1120416/1500000: episode: 473, duration: 29.903s, episode steps: 3504, steps per second: 119, episode reward: -1.000, mean 1
1123639/1500000: episode: 474, duration: 27.399s, episode steps: 3223, steps per second: 118, episode reward: 7.000, mean 1
1126512/1500000: episode: 475, duration: 24.095s, episode steps: 2873, steps per second: 119, episode reward: 5.000, mean 1
1129803/1500000: episode: 476, duration: 27.799s, episode steps: 3291, steps per second: 118, episode reward: 1.000, mean 1
1133567/1500000: episode: 477, duration: 31.600s, episode steps: 3764, steps per second: 119, episode reward: 1.000, mean 1
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1139531/1500000: episode: 479, duration: 26.527s, episode steps: 3154, steps per second: 119, episode reward: 6.000, mean 1
1142043/1500000: episode: 480, duration: 21.384s, episode steps: 2512, steps per second: 117, episode reward: 12.000, mean 1
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1147009/1500000: episode: 482, duration: 22.366s, episode steps: 2508, steps per second: 112, episode reward: 12.000, mean 1
1149464/1500000: episode: 483, duration: 21.892s, episode steps: 2455, steps per second: 112, episode reward: 13.000, mean 1
1152030/1500000: episode: 484, duration: 23.002s, episode steps: 2566, steps per second: 112, episode reward: 11.000, mean 1
1154534/1500000: episode: 485, duration: 22.271s, episode steps: 2504, steps per second: 112, episode reward: 13.000, mean 1
1157523/1500000: episode: 486, duration: 26.023s, episode steps: 2989, steps per second: 115, episode reward: 9.000, mean 1
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1162706/1500000: episode: 488, duration: 18.431s, episode steps: 2154, steps per second: 117, episode reward: 17.000, mean 1
1165180/1500000: episode: 489, duration: 21.443s, episode steps: 2474, steps per second: 115, episode reward: 12.000, mean 1
1168073/1500000: episode: 490, duration: 24.897s, episode steps: 2893, steps per second: 116, episode reward: 10.000, mean 1
1170853/1500000: episode: 491, duration: 24.036s, episode steps: 2780, steps per second: 116, episode reward: 11.000, mean 1
1173246/1500000: episode: 492, duration: 20.661s, episode steps: 2393, steps per second: 116, episode reward: 15.000, mean 1
1175265/1500000: episode: 493, duration: 17.316s, episode steps: 2019, steps per second: 117, episode reward: 17.000, mean 1
1177689/1500000: episode: 494, duration: 20.784s, episode steps: 2424, steps per second: 117, episode reward: 13.000, mean 1
1180836/1500000: episode: 495, duration: 26.977s, episode steps: 3147, steps per second: 117, episode reward: 9.000, mean 1
1183130/1500000: episode: 496, duration: 19.823s, episode steps: 2294, steps per second: 116, episode reward: 13.000, mean 1
1185409/1500000: episode: 497, duration: 19.698s, episode steps: 2279, steps per second: 116, episode reward: 15.000, mean 1
1188596/1500000: episode: 498, duration: 27.609s, episode steps: 3187, steps per second: 115, episode reward: 3.000, mean 1
1191599/1500000: episode: 499, duration: 26.015s, episode steps: 3003, steps per second: 115, episode reward: 5.000, mean 1
1194738/1500000: episode: 500, duration: 27.499s, episode steps: 3139, steps per second: 114, episode reward: 5.000, mean 1
1198189/1500000: episode: 501, duration: 29.862s, episode steps: 3451, steps per second: 116, episode reward: 1.000, mean 1
1201402/1500000: episode: 502, duration: 28.656s, episode steps: 3213, steps per second: 112, episode reward: 4.000, mean 1
1204494/1500000: episode: 503, duration: 27.393s, episode steps: 3092, steps per second: 113, episode reward: 4.000, mean 1
1206589/1500000: episode: 504, duration: 20.324s, episode steps: 2095, steps per second: 103, episode reward: 15.000, mean 1
1209491/1500000: episode: 505, duration: 28.259s, episode steps: 2902, steps per second: 103, episode reward: -3.000, mean 1
1212272/1500000: episode: 506, duration: 26.587s, episode steps: 2781, steps per second: 105, episode reward: 12.000, mean 1
1215020/1500000: episode: 507, duration: 25.311s, episode steps: 2748, steps per second: 109, episode reward: 12.000, mean 1
1217839/1500000: episode: 508, duration: 27.013s, episode steps: 2819, steps per second: 104, episode reward: 10.000, mean 1
1220631/1500000: episode: 509, duration: 25.024s, episode steps: 2792, steps per second: 112, episode reward: 12.000, mean 1
1223226/1500000: episode: 510, duration: 21.832s, episode steps: 2595, steps per second: 119, episode reward: 13.000, mean 1
1226145/1500000: episode: 511, duration: 24.517s, episode steps: 2919, steps per second: 119, episode reward: 6.000, mean 1
1228539/1500000: episode: 512, duration: 20.422s, episode steps: 2394, steps per second: 117, episode reward: 14.000, mean 1
1230747/1500000: episode: 513, duration: 18.633s, episode steps: 2208, steps per second: 119, episode reward: 14.000, mean 1
1232798/1500000: episode: 514, duration: 17.262s, episode steps: 2051, steps per second: 119, episode reward: 17.000, mean 1
1235864/1500000: episode: 515, duration: 25.933s, episode steps: 3066, steps per second: 118, episode reward: -6.000, mean 1
1238424/1500000: episode: 516, duration: 21.418s, episode steps: 2560, steps per second: 120, episode reward: 10.000, mean 1
1241395/1500000: episode: 517, duration: 24.943s, episode steps: 2971, steps per second: 119, episode reward: -10.000, mean 1
1243738/1500000: episode: 518, duration: 19.735s, episode steps: 2343, steps per second: 119, episode reward: 15.000, mean 1
1246534/1500000: episode: 519, duration: 23.508s, episode steps: 2796, steps per second: 119, episode reward: 11.000, mean 1
1248996/1500000: episode: 520, duration: 20.753s, episode steps: 2462, steps per second: 119, episode reward: 12.000, mean 1
1251169/1500000: episode: 521, duration: 18.250s, episode steps: 2173, steps per second: 119, episode reward: 15.000, mean 1
1254192/1500000: episode: 522, duration: 25.419s, episode steps: 3023, steps per second: 119, episode reward: 4.000, mean 1
1256127/1500000: episode: 523, duration: 16.271s, episode steps: 1935, steps per second: 119, episode reward: 17.000, mean 1
1257926/1500000: episode: 524, duration: 15.133s, episode steps: 1799, steps per second: 119, episode reward: 19.000, mean 1
1260327/1500000: episode: 525, duration: 20.252s, episode steps: 2401, steps per second: 119, episode reward: 14.000, mean 1
1262445/1500000: episode: 526, duration: 17.779s, episode steps: 2118, steps per second: 119, episode reward: 16.000, mean 1
1264773/1500000: episode: 527, duration: 19.895s, episode steps: 2328, steps per second: 117, episode reward: 9.000, mean 1
1267029/1500000: episode: 528, duration: 19.062s, episode steps: 2256, steps per second: 118, episode reward: 16.000, mean 1
1269675/1500000: episode: 529, duration: 22.453s, episode steps: 2646, steps per second: 118, episode reward: 11.000, mean 1
1271661/1500000: episode: 530, duration: 16.680s, episode steps: 1986, steps per second: 119, episode reward: 16.000, mean 1
1274337/1500000: episode: 531, duration: 22.431s, episode steps: 2676, steps per second: 119, episode reward: 9.000, mean 1
1276856/1500000: episode: 532, duration: 21.204s, episode steps: 2519, steps per second: 119, episode reward: 10.000, mean 1
1279797/1500000: episode: 533, duration: 24.882s, episode steps: 2941, steps per second: 118, episode reward: 8.000, mean 1
1282322/1500000: episode: 534, duration: 21.963s, episode steps: 2525, steps per second: 115, episode reward: 11.000, mean 1
1284490/1500000: episode: 535, duration: 19.439s, episode steps: 2168, steps per second: 112, episode reward: 14.000, mean 1
1287421/1500000: episode: 536, duration: 26.219s, episode steps: 2931, steps per second: 112, episode reward: 10.000, mean 1
1289895/1500000: episode: 537, duration: 22.136s, episode steps: 2474, steps per second: 112, episode reward: 12.000, mean 1
1292715/1500000: episode: 538, duration: 25.179s, episode steps: 2820, steps per second: 112, episode reward: 7.000, mean 1
1295085/1500000: episode: 539, duration: 20.494s, episode steps: 2370, steps per second: 116, episode reward: 13.000, mean 1
1297819/1500000: episode: 540, duration: 23.677s, episode steps: 2734, steps per second: 115, episode reward: 11.000, mean 1
1300657/1500000: episode: 541, duration: 24.908s, episode steps: 2838, steps per second: 114, episode reward: 8.000, mean 1
1302988/1500000: episode: 542, duration: 20.212s, episode steps: 2331, steps per second: 115, episode reward: 12.000, mean 1
1305755/1500000: episode: 543, duration: 24.170s, episode steps: 2767, steps per second: 114, episode reward: 8.000, mean 1
1308441/1500000: episode: 544, duration: 23.426s, episode steps: 2686, steps per second: 115, episode reward: 9.000, mean 1
1311459/1500000: episode: 545, duration: 26.293s, episode steps: 3018, steps per second: 115, episode reward: 7.000, mean 1
1314176/1500000: episode: 546, duration: 23.403s, episode steps: 2717, steps per second: 116, episode reward: 8.000, mean 1
1316322/1500000: episode: 547, duration: 18.384s, episode steps: 2146, steps per second: 117, episode reward: 16.000, mean 1
1319392/1500000: episode: 548, duration: 26.355s, episode steps: 3070, steps per second: 116, episode reward: 6.000, mean 1
1322446/1500000: episode: 549, duration: 26.562s, episode steps: 3054, steps per second: 115, episode reward: -1.000, mean 1
1324863/1500000: episode: 550, duration: 21.015s, episode steps: 2417, steps per second: 115, episode reward: 11.000, mean 1
1327387/1500000: episode: 551, duration: 21.964s, episode steps: 2524, steps per second: 115, episode reward: 11.000, mean 1
1330593/1500000: episode: 552, duration: 27.911s, episode steps: 3206, steps per second: 115, episode reward: -7.000, mean 1
1332864/1500000: episode: 553, duration: 19.849s, episode steps: 2271, steps per second: 114, episode reward: 13.000, mean 1
1335429/1500000: episode: 554, duration: 22.776s, episode steps: 2565, steps per second: 113, episode reward: 8.000, mean 1
1337717/1500000: episode: 555, duration: 20.913s, episode steps: 2288, steps per second: 109, episode reward: 14.000, mean 1
1340406/1500000: episode: 556, duration: 23.735s, episode steps: 2689, steps per second: 113, episode reward: 10.000, mean 1
1343320/1500000: episode: 557, duration: 28.390s, episode steps: 2914, steps per second: 103, episode reward: 6.000, mean 1
1346586/1500000: episode: 558, duration: 31.718s, episode steps: 3266, steps per second: 103, episode reward: 3.000, mean 1
1349192/1500000: episode: 559, duration: 25.239s, episode steps: 2606, steps per second: 103, episode reward: 9.000, mean 1
1351990/1500000: episode: 560, duration: 25.626s, episode steps: 2798, steps per second: 109, episode reward: 9.000, mean 1
1354333/1500000: episode: 561, duration: 22.682s, episode steps: 2343, steps per second: 103, episode reward: 14.000, mean 1
1356756/1500000: episode: 562, duration: 21.992s, episode steps: 2423, steps per second: 110, episode reward: 10.000, mean 1
1358909/1500000: episode: 563, duration: 18.382s, episode steps: 2153, steps per second: 117, episode reward: 14.000, mean 1
1362133/1500000: episode: 564, duration: 27.266s, episode steps: 3224, steps per second: 118, episode reward: 3.000, mean 1
1364669/1500000: episode: 565, duration: 21.488s, episode steps: 2536, steps per second: 118, episode reward: 10.000, mean 1
1367247/1500000: episode: 566, duration: 21.889s, episode steps: 2578, steps per second: 118, episode reward: 14.000, mean 1
1369927/1500000: episode: 567, duration: 23.041s, episode steps: 2680, steps per second: 116, episode reward: 11.000, mean 1


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1372284/1500000: episode: 568, duration: 20.146s, episode steps: 2357, steps per second: 117, episode reward: 16.000, mean
1374629/1500000: episode: 569, duration: 20.059s, episode steps: 2345, steps per second: 117, episode reward: 16.000, mean
1377247/1500000: episode: 570, duration: 22.109s, episode steps: 2618, steps per second: 118, episode reward: 8.000, mean
1379044/1500000: episode: 571, duration: 15.182s, episode steps: 1797, steps per second: 118, episode reward: 20.000, mean
1381259/1500000: episode: 572, duration: 18.774s, episode steps: 2215, steps per second: 118, episode reward: 15.000, mean
1383317/1500000: episode: 573, duration: 17.494s, episode steps: 2058, steps per second: 118, episode reward: 18.000, mean
1386171/1500000: episode: 574, duration: 24.208s, episode steps: 2854, steps per second: 118, episode reward: 10.000, mean
1388107/1500000: episode: 575, duration: 16.399s, episode steps: 1936, steps per second: 118, episode reward: 18.000, mean
1390763/1500000: episode: 576, duration: 22.460s, episode steps: 2656, steps per second: 118, episode reward: 11.000, mean
1393761/1500000: episode: 577, duration: 25.393s, episode steps: 2998, steps per second: 118, episode reward: 8.000, mean
1396188/1500000: episode: 578, duration: 20.544s, episode steps: 2427, steps per second: 118, episode reward: 11.000, mean
1398879/1500000: episode: 579, duration: 22.762s, episode steps: 2691, steps per second: 118, episode reward: 5.000, mean
1402010/1500000: episode: 580, duration: 26.456s, episode steps: 3131, steps per second: 118, episode reward: 4.000, mean
1404792/1500000: episode: 581, duration: 23.484s, episode steps: 2782, steps per second: 118, episode reward: 9.000, mean
1407370/1500000: episode: 582, duration: 22.296s, episode steps: 2578, steps per second: 116, episode reward: 12.000, mean
1409599/1500000: episode: 583, duration: 18.988s, episode steps: 2229, steps per second: 117, episode reward: 12.000, mean
1411723/1500000: episode: 584, duration: 18.051s, episode steps: 2124, steps per second: 118, episode reward: 15.000, mean
1414263/1500000: episode: 585, duration: 21.543s, episode steps: 2540, steps per second: 118, episode reward: 15.000, mean
1417080/1500000: episode: 586, duration: 24.139s, episode steps: 2817, steps per second: 117, episode reward: 9.000, mean
1419223/1500000: episode: 587, duration: 19.307s, episode steps: 2143, steps per second: 111, episode reward: 14.000, mean
1421071/1500000: episode: 588, duration: 16.700s, episode steps: 1848, steps per second: 111, episode reward: 19.000, mean
1423887/1500000: episode: 589, duration: 25.305s, episode steps: 2816, steps per second: 111, episode reward: 7.000, mean
1427161/1500000: episode: 590, duration: 29.541s, episode steps: 3274, steps per second: 111, episode reward: 3.000, mean
1429550/1500000: episode: 591, duration: 20.842s, episode steps: 2389, steps per second: 115, episode reward: 17.000, mean
1432302/1500000: episode: 592, duration: 23.856s, episode steps: 2752, steps per second: 115, episode reward: 11.000, mean
1435967/1500000: episode: 593, duration: 31.742s, episode steps: 3665, steps per second: 115, episode reward: 1.000, mean
1438095/1500000: episode: 594, duration: 18.457s, episode steps: 2128, steps per second: 115, episode reward: 15.000, mean
1440774/1500000: episode: 595, duration: 23.244s, episode steps: 2679, steps per second: 115, episode reward: 10.000, mean
1443606/1500000: episode: 596, duration: 25.020s, episode steps: 2832, steps per second: 113, episode reward: 7.000, mean
1446196/1500000: episode: 597, duration: 23.206s, episode steps: 2590, steps per second: 112, episode reward: 11.000, mean
1448198/1500000: episode: 598, duration: 17.297s, episode steps: 2002, steps per second: 116, episode reward: 18.000, mean
1451024/1500000: episode: 599, duration: 24.485s, episode steps: 2826, steps per second: 115, episode reward: 6.000, mean
1453288/1500000: episode: 600, duration: 19.537s, episode steps: 2264, steps per second: 116, episode reward: 13.000, mean
1456098/1500000: episode: 601, duration: 24.260s, episode steps: 2810, steps per second: 116, episode reward: 12.000, mean
1458391/1500000: episode: 602, duration: 19.953s, episode steps: 2293, steps per second: 115, episode reward: 16.000, mean
1460987/1500000: episode: 603, duration: 22.564s, episode steps: 2596, steps per second: 115, episode reward: 9.000, mean
1463295/1500000: episode: 604, duration: 20.018s, episode steps: 2308, steps per second: 115, episode reward: 14.000, mean
1465534/1500000: episode: 605, duration: 19.486s, episode steps: 2239, steps per second: 115, episode reward: 14.000, mean
1467812/1500000: episode: 606, duration: 19.855s, episode steps: 2278, steps per second: 115, episode reward: 13.000, mean
1470815/1500000: episode: 607, duration: 26.175s, episode steps: 3003, steps per second: 115, episode reward: 7.000, mean
1473242/1500000: episode: 608, duration: 21.201s, episode steps: 2427, steps per second: 114, episode reward: 13.000, mean
1476443/1500000: episode: 609, duration: 28.648s, episode steps: 3201, steps per second: 112, episode reward: 7.000, mean
1478870/1500000: episode: 610, duration: 21.984s, episode steps: 2427, steps per second: 110, episode reward: 12.000, mean
1481190/1500000: episode: 611, duration: 21.242s, episode steps: 2320, steps per second: 109, episode reward: 13.000, mean
1483608/1500000: episode: 612, duration: 23.772s, episode steps: 2418, steps per second: 102, episode reward: 9.000, mean
1485951/1500000: episode: 613, duration: 22.901s, episode steps: 2343, steps per second: 102, episode reward: 13.000, mean
1489250/1500000: episode: 614, duration: 31.782s, episode steps: 3299, steps per second: 104, episode reward: 5.000, mean
1491780/1500000: episode: 615, duration: 23.028s, episode steps: 2530, steps per second: 110, episode reward: 9.000, mean
1494399/1500000: episode: 616, duration: 24.940s, episode steps: 2619, steps per second: 105, episode reward: 14.000, mean
1496660/1500000: episode: 617, duration: 21.256s, episode steps: 2261, steps per second: 106, episode reward: 14.000, mean
1498748/1500000: episode: 618, duration: 18.592s, episode steps: 2088, steps per second: 112, episode reward: 15.000, mean
done, took 13087.561 seconds

```

Pesos guardados en: 202001101719_dqn_PongDeterministic-v0_weights.h5f



Testing for 10 episodes ...

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Episode 1: reward: 18.000, steps: 2097
Episode 2: reward: 13.000, steps: 2524
Episode 3: reward: 16.000, steps: 2123
Episode 4: reward: 14.000, steps: 2272
Episode 5: reward: 13.000, steps: 2279
Episode 6: reward: 15.000, steps: 2435
Episode 7: reward: 8.000, steps: 2669
Episode 8: reward: 13.000, steps: 2309
Episode 9: reward: 12.000, steps: 2665
Episode 10: reward: 12.000, steps: 2484
mean_reward: 13.4
mean_steps: 2385.7
(13.4, 2385.7)

```