Case 1

Input

N: 1S 1E 00

E: 1W 00 00

S: 00 00 00

W: 00 00 00

Output

N: 1S 1E 00

E: 00 00 1W

S: 00 00 00

W: 00 00 00

# 3 Rounds

Average waiting round = 2/3 = 1.500

Average waiting time = 2\*5/3 = 7.500

Case 2

Input

N: 00 1E 00 00 1S 1E 00 00 3

E: 00 1S 1S 1N 00 00 1W 00 4

S: 1N 1E 1W 1W 1N 1E 1W 00 7

W: 1N 1E 1S 00 00 1N 00 1E 5

Output

N: 00 00 00 00 1E 00 1S 00 00 00 00 00 1E

E: 00 1S 00 00 00 00 00 1S 1N 00 00 1W 00

S: 1N 1E 00 1W 00 1W 1N 1E 00 1W 00 00 00

W: 00 00 1N 00 00 00 00 00 1E 1S 1N 1E 00

# 13 Rounds

Average waiting round = 62/19 = 3.263

Average waiting round = 62\*5/19 = 16.316

N: 00 00 00 00 00 1E 1S 00 00 00 00 00 1E

E: 00 1S 00 00 00 00 00 1S 1N 00 00 1W 00

S: 1N 1E 00 1W 1W 00 1N 1E 00 1W 00 00 00

W: 00 00 1N 00 00 00 00 00 1E 1S 1N 1E 00

# 13 Rounds

Average waiting round = 62/19 = 3.263

Average waiting round = 62\*5/19 = 16.316

Case 3

Input

N: 1E 00 1E 00 1S 1E 00 00

E: 00 1S 1S 1S 1N 00 1W 00

S: 1E 1E 1E 1E 00 1E 1W 00

W: 1E 1E 00 00 1E 1N 00 1E

Output

(queue>3)

N: 1E 00 00 00 1E 00 00 1S 00 00 00 1E 00 00

E: 00 1S 1S 1S 1N 00 1W 00 00 00 00 00 00 00

S: 00 1E 1E 1E 00 00 00 1E 00 00 1E 00 1W 00

W: 00 00 00 00 00 1E 1E 00 1E 1N 00 00 00 1E

# 14 Rounds

Average waiting round = 53/20 = 2.650

Average waiting time = 53\*5/20 = 13.250

(same)

N: 1E 00 00 00 1E 1S 00 00 00 00 00 1E 00 00

E: 00 1S 1S 1S 1N 00 1W 00 00 00 00 00 00 00

S: 00 1E 1E 1E 00 1E 00 00 00 00 1E 00 1W 00

W: 00 00 00 00 00 00 1E 1E 1E 1N 00 00 00 1E

# 14 Rounds

Average waiting round = 51/20 = 2.550

Average waiting time = 51\*5/20 = 12.750

Case 4

Input

N: 00 1E 00 00 1E 00 00 00

E: 00 00 00 1S 00 1N 1S 00

S: 1E 1W 1W 1W 1N 00 1N 1E

W: 1N 00 1N 00 00 1N 00 1E

Output

N: 00 00 00 00 1E 00 00 00 1E 00 00 00 00 00

E: 00 00 00 00 00 00 00 1S 1N 00 00 00 1S 00

S: 1E 00 1W 1W 00 00 1W 00 00 1N 00 1N 1E 00

W: 00 1N 00 00 00 1N 00 00 00 00 1N 00 00 1E

# 14 Rounds

Average waiting round = 56/16 = 3.500

Average waiting time = 56\*5/16 = 17.50

Case 5

Input

N: 1E 1W 1E 1S 1E 00 00 00

E: 1S 1S 1W 1N 1W 00 00 00

S: 1N 1E 1E 1W 1N 00 00 00

W: 1E 1N 1S 1E 1N 00 00 00

Output

N: 00 1E 1W 00 00 00 1E 00 00 1S 00 1E 00

E: 1S 00 00 00 1S 1W 1N 00 00 00 1W 00 00

S: 00 00 00 1N 1E 1E 00 00 1W 1N 00 00 00

W: 00 00 1E 00 00 00 00 1N 1S 00 1E 00 1N

# 13 Rounds

Average waiting round = 82/20 = 4.100

Average waiting time = 82\*5/20 = 20.500