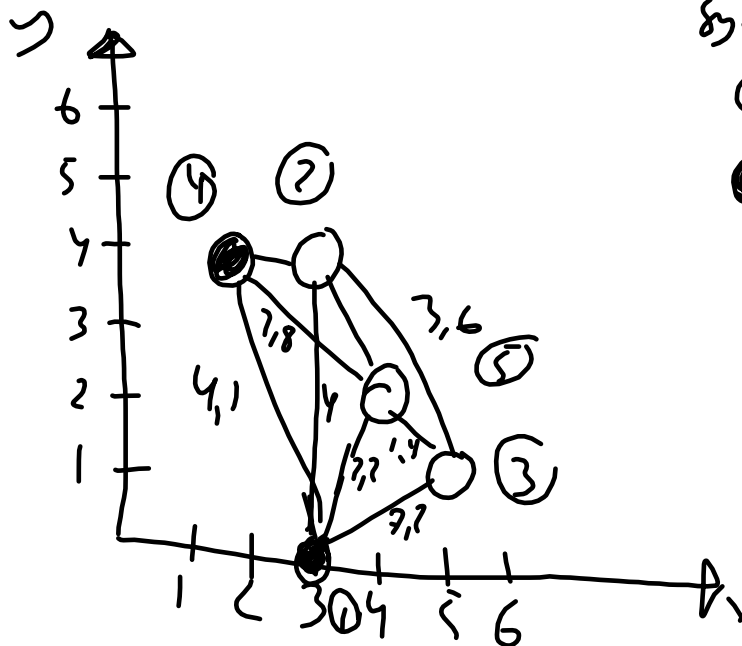


Exercises from Lecture 11 (SR2)

Question 1

a)



What are main parameters

1) Opinions o , Start frequency

2) Nearest neighbour k (or distance d ?)

3) N is number of agents

Performance is dependent on

1) Accuracy

How often will system converge to

a) Majority of initial state?

b) Initial frequency?

2, Speed

How fast will system converge?

a) Number of iterations in convergence

b) Complexity of algorithm in terms
 $O(D, N)$

Hand calculate for $k = 3$
* Voter model

1) Who gets picked for voting?

a) Random? Update state individually
↳ All simultaneously?

2) Lets pick ① and find neighbours

⇒ ②, ③ and ⑤ (N_i)

3) Pick one neighbour at random
⇒ ⑤ of $s=1$ and change ① to $s=1$

* Majority rule

1) Who gets picked?

a) Random?

b) All simultaneously?

2, Lets pick ① again and find neighbors including itself

\Rightarrow ①, ②, ③ and ⑤ (G_i)

3, Calculate the frequencies of opinions

$s_1 = 0$, $s_2 = 1$, $s_3 = 1$ and $s_5 = 1$

$\Rightarrow f_{s=0} = \frac{1}{4}$ and $f_{s=1} = \frac{3}{4}$

4, Change opinion of ① to highest freq.

$$\Rightarrow s_1 = 1$$

Notes

1, How to determine start criteria for opinion consensus?

2, How to determine stop criteria for opinion consensus?