Exercises from lecture 5 (swarm robotics 2) TEK5010 Multiagent systems 2021

Question 1

In this exercise we will explore consensus modelling in swarm systems.

a) Could you explain the *voter model* and characterize its performance?

b) Could you also describe and characterize the *majority rule*?

c) Given a network of 5 agents, each located at position x, y and of 2 possible states s describe by the tuple $(x, y, s = \{0,1\})$

$$(3, 0, s = 0), (3, 4, s = 1), (5, 1, s = 1), (2, 4, s = 0)\ and\ (4, 2, s = 1)$$

Could you track one iteration of the consensus process for this population using both models?

d) Optional: Simulate the general case when there are N agents of O opinions. How does the two models compare?