WOLF – SHEEP MODEL

- Go to https://www.netlogoweb.org
- Select “Wolf Sheep Predation”
- Note that you can check the “Model Info”
- Run the model to answer the following questions

TEAM BASED LEARNING

elements shouldn't be identical

1. A complex system consists of elements, and these elements have connectivity. Which of the following answers best describes the situation in the Wolf Sheep Predation model?

   a. This model contains two elements, which in this case are agents and one connection when the wolf eat the sheep.

   b. This model contains three elements, two agents and one environment and the connection between these elements are that the sheep eat the grass, the wolf eat the sheep.

   c. The model contains many elements, many sheep and many wolf, the links between them are that some sheep are eaten by wolf.

   d. This model contains many elements, many sheep and many wolf and many patches (cells) with different levels of grass development. The links between these elements is that grass is eaten by sheep and sheep are eaten by wolf.

element aren't identical !!!

TEAM BASED LEARNING

2. For the wolf-sheep model, which of the following statements about interactions is correct?

a. The model contains positive feedback loops

b. The model contains negative feedback loops → growth of wolve, less sheep

c. The model does not contain any feedback loops

it try to stabilize the system

limited on grass (food supply)

TEAM BASED LEARNING

3. Complex systems show non-linear behaviour. The wolf-sheep model represents a complex system because it has the following examples of non-linearity. Select all correct answers.

a. The model has state transitions
b. In this model, small changes can have large impacts
c. The model is scale-less (fractal)
d. The model has tipping points
e. All of the above

→ it should be emerged spontaneously by for the model

based on changing the params of wolf sheep model (ex. no. of wolf/sheep pop, reproducible rate), if we set high no. of sheep pop → it still gone at last as we run model

state transition

Lirreversible (ex. we lose all wolf/sheeps)

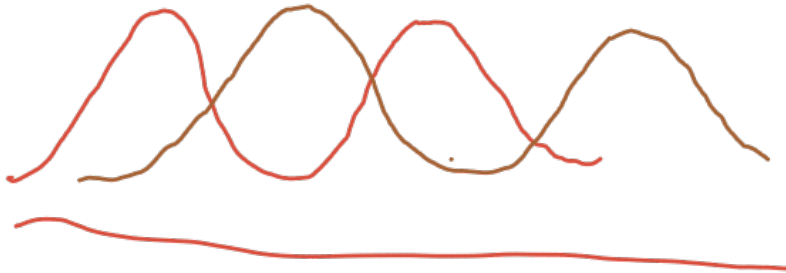
TEAM-BASED LEARNING

4. The wolf-sheep example shows emergence. What emerges?

- Patterns
- Structures
- Behavior

Snowflake

pattern in time



wolf (population)
sheep (population)

pattern in population

time

ex.
agent learn
to find new evacuation way