Homework 5

A list of key points of the course in ABM and complex networks:

1. We have seen how we can build a network in Netlogo via the creation of nodes (the turtles) and links and how we can import the extension “nw” in order for example to select some of the nodes and links previously created and to set them in a “context”: this will be a sub-graph of the global network. Moreover, via the extension “nw”, we can work on this context and calculate some quantities such as the nodes’ degree, the clustering coefficient, the betweenness –centrality and so on.
2. We have never long built a network manually but we have observed how it emerges from the interactions of the agents among them (this is what effectively happens in the real world): in particular we have considered the network built by orders that move toward factories that have skills contained in the orders’ recipes.
3. Then we have seen the “production” file in SLAPP and we have paid a particular attention to the general construction of a model; we have seen that there are three schedules: the first is at the level of the observer (we can ask the model to do a step and then to make a pause so that we have time to visualize the network), the second at the level of the model ( at every step we can read the script containing the detailed list of agents’ actions) ant the third at the level of agents ( we write what actions they have to do step by step).
4. We have seen how we can include parts of code from other files in Netlogo.
5. We have changed the number of factories in “production” while the model is running both adding some commands in the model schedule and adding commands in the analytical one.
6. We imported “networkx” in Python and we saw how we can create an network using it; we also discovered that it uses dictionaries in order to do almost everything: for example, to give nodes a well-defined position, a certain size, label and so on.
7. We discovered how we can change commands in the observer’s schedule in order to have a continuous flow of events in the graphic window ( we can also decide how long each graph has to be visible until the successive takes its place): in this way we can have nodes moving in the display and we saw also how to give them a certain layout.