10-22 – Thinking about our agents

* In an ABM, agents have:
  + Interactions with the environment
  + Interaction with each other
  + Complex states
* What are the characteristics of an agent?
  + There are two notions of agency
    - Weak agency – typically for software agents
    - Strong agency – typically for artificial intelligence
  + Weak agency
    - Autonomy – agents operate without the direct intervention of humans or others, and have some kind of control over their actions and internal state
    - Social ability – agents interact with other agents (and possibly humans) via some form of agent communication language
    - Reactivity – agents perceive their environment and respond in a timely fashion to changes that occur in it
    - Pro-activeness – agents do not simply act in response to their environment, they are able to exhibit goal-directed behavior by taking the initiative
  + Strong agency
    - All the weak properties
    - Mentalistic notions (belief, desire, obligation, choice)
    - Rationality
    - Veracity – truthfulness
    - Adaptability/learning
  + Micro vs macro issues when building an ABM
    - Micro issues – how do we design and build an agent that is capable of acting autonomously reactively, pro-actively in a time-constrained domain?
    - Macro issues – how do we get a society of agents to cooperate effectively (maximizing their coherence and coordination)?