Assignment 3

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1. Simulation in Sociology, Moretti (2002)

In the article the author discusses about the potential weaknesses in validity regarding to multi-agent systems and cellular automata that is the feature of synchronism and the connection with the empirical word. Even though multi-agent systems and cellular automata can better simulate the social phenomena, using the synchronous updating of states might not be able to perfectly represent the real world since the behavior of individual would not updated simultaneously. In addition, computation simulations in general derive the verified behavior of agents from the theory, and theory might not be an accurate representation of reality. In other words, the consequence of the simulation is only based on the changes of variables or assumptions of the theory. Therefore, the simulations produced by multi-agent systems and cellular automata are still not able to perfectly represent the social phenomena in the real world.

To illustrate the characteristics of dynamic feedback in computer simulation, the author mentions some researches such as the model of dynamic social impact, which explores the necessary and sufficient conditions for the clustering and the polarization of opinions. In this study, the author, Latané, proposes that individual differs and each individual tends to have a stable location in space. Based on those propositions, he points out that social influence depends on the strength of the influential individual and physical distances among people. For instance, people are more likely to be influenced by their neighbor rather than a stranger, which will lead to a spatial clustering. Due to the phenomena of clustering, the number of minorities in the society will decline but still be able to survive. Even though the incremental influence will lead to convergence, nonlinear influence will maintain the diversity within a society. The researchers in this study attain this result from computer simulation by getting the dynamic feedback.

Within Political Science, theories of international relations are difficult to test. For example, the topic on the preference of a country towards cooperation when a strong military country starts building up its military power would be hard to experiment. Therefore, using the dynamic feedback here would be helpful to discourse the possible outcomes. Assuming there are three countries which possess different level of military power, one is strong (country A), one is not so strong (country B), and the last one is least strong (country C). If today country A, the strongest

one, decides to enhance their military power, then country C might choose to cooperate with other stronger country, either A or B. In response to this cooperation, if country C cooperates with country A, then country B might become nervous and try to join the alliance. However, if country C chooses to cooperate with country B, country A might reconsider about its strategy of enhancing its military power. Apparently, one's decision might influence others' decisions to cooperate. In order to study on the complex interactions between these three countries, using the dynamic feedback in computer simulation can help the researchers to better evaluate the possible outcome of this political topic.