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Group Name: creative!

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General Introduction

During the course of human history, regime changes have often occurred by civilians taking up arms. This “civil violence” also happens right now in Syria, and a similar movement has just been successful in Libya and Egypt. These uprisings or rebellions have a big impact on our world, and an ever bigger impact on the people actually executing them. So it is imperative to be able to predict such changes, and that's exactly what we strife for: A clear model for civil violence,so that in the future we can better predict outcomes and aftermaths of these events.

Real world examples would be: Syria, Libya, Egypt, Russia, United States of America, even Switzerland etc.

(The canton Wallis had various unsuccessful uprisings until it was granted autonomy from Bern.)

Today, as taught in our schools, revolutions are formed by “normal”civilians, who are unhappy with their current situation. Somehow, this unhappy (but non-active) mob produces/elects a leader, who will then lead them into action. This now active mob will then have to fulfill certain tasks, such as taking up weapons against an oppressive military force, or a demonstration of force in form of a peaceful protest. On completion of these tasks, they can then form their own government according to their liking.

While the very first step (unhappy civilians) is often a requirement, the idea of a revolution forming and a revolution marching against the current system is not sophisticated enough. There are many factors which can catalyze or hinder the formation of a rebellion, as we are going to show.

The tactics which can be employed by a system that is under attack are also somewhat left out in our education, take the revolution in Egypt as an example: What would have happened if the government went “all out” on the protesters? Would the military rule have held another decade?

Fundamental Questions

Modifications of the model from Eppstein:

1. Different start conditions: some Cops are positioned in a casern (Soldier-cops) in the middle of the field. The rest is equidistributed (Police-cops).
2. Different distributions: the equidistribution for the level of hardship H or risk aversion R and over variables is not satisfying. To model the reality better, we want to use a distribution on [0,1] similar to the Gaussian distribution centred at ½.
3. Jail experience: The level of Risk aversion will rise during jailtime.
4. Agent leader: A new typ of agent. He will „lead“ the revolution. He’s able to increas the probability of Agents in an area around him to become active (by decreasing the level of Legitimacy L and decreasing the risk aversion R)
5. Copleader : New typ of cop. Modified by the ability of increasing the Level of Legitimacy L and the level of risk aversion R around him.
6. Intelligente Agents: active agents also move around. They have a higher change of moving towards a Leader and/or other agents (inside their visible area). This models the forming of a demonstration . This will change the cop /agent ratio and thereby decreas the risk for an active agent to be arrested.
7. Intelligente cops: Cops will have a higher change of moving towards active agents (inside their visible area). If they can`t see any active agents the Soldier-cops will have a higher chance of moving towards the casern in the middle of the field. The police-cops jus twill move randomly.

Questions:

- How does the results of the Eppstein Model differ from the result of theModel modified by 1 and 2?
- Does the autcome changes under a combination of Modifications 3-7? What influence do the modifications have ? Are there interesting cases ?
- How does the success rat of a revolution depend of the different Modifications ? Success of a revolution means that where are a certain number of active agents. The total sucess will be measured by the amount of succesful revolutions in a certain time period. This correlats with the average waiting time between two successful revolutions.
- How does the amount of cops influence the total success in the different models ? What is the influence of the amount of military-cops and Police cops ? So are equidistributed cops better then centrally based cops? Will the probability for a revolution increas with the distance from the casern i.e. will active agents be likely far away from the casern ?
- Is a revolution successful because of it`s people or it`s leaders : Is there a significant higher probability for a sucessful revolution if there is an Agent Leader or not ?

Expected Results

A model that offers an improved algorithm to model uprisings and produce similar patterns as in real life.

References

Modeling civil violence: An agent-based computational approach,, Eppstein 2002

Project about « Civil Violance » from 2010

Research Methods

Agent-Based Model (Continuous Modeling would be possible