Using a Simple Model to Simulate the Consensus Formation

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This work was inspired by the famous Japanese drama "Legal High". When a person is making a decision, he/she must consider his/her personal favorites (and benefits ….) and the mainstream opinion of the community he/she is in. The competition between personal individuality and bandwagon effect cause the complicated phenomenon in "Consensus Formation".

We adopt the basic idea of quantum walk model to build a simple model to simulate the competition of different opinions. In this model, the opinions which stored in each person's mind are written in a multi-state wave function. When someone tries to make a decision, the wave function will collapse into a choice (a measurement). The process of spreading is written to a coin and a shift operator. By using these operators, the opinions can be modified and propagated. In addition, two competitive elements, namely personal individuality and bandwagon effect, are considered by using a ratio control parameter in this model.

In this meeting, we will report the idea of our model and the simulation results in several different conditions such as social networks (1D, 2D, small world...), types of opinion spreading(wave function , coin and shift operators...), simulation methods(MC, CA…). Simulation of this model shows different types of opinion's diffusion, and the possibility of phase transition in uniformity of opinion.

References

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