Continuous Opinion Dynamics under Bounded Confidence
- A Model to explain the formation of Parties?

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Abstract

Opinion spaces in political debates are often mapped to intervals of real numbers or their 2d or 3d equivalents. This is done for example by statistical factor analysis on voting data in Switzerland (see [1,2]). Scales are labeled (in order of importance) left vs. right wing, liberal vs. conservative, technocratic vs. ecological.

Members of the parliament or geographical communities can be located in these opinion spaces by their voting behavior in parliament respectively in referendums. Especially representatives in the parliament show strong clustering which coincides strongly with their membership in political parties. The existence of political parties is ubiquitous in western European political systems. On the other hand, political parties are usually not constitutionally implemented. Thus, their existence is not a priori clear. It is interesting to what extend the formation of political parties is driven by external factors such as ideologies, by boundary conditions such as the political system or by intrinsic opinion dynamics in the process of deliberation.

The model of continuous opinion dynamics under bounded confidence (see [3,4]) shows that simple assumptions on the process of deliberation lead to intrinsic formations of political parties. The model assumes a certain number of individual agents, each holding an initial opinion which is a real number between zero and one (in analogy to an opinion space constructed by factor analysis). In the process of deliberation each agent is willing to adjust her opinion towards the opinions of others. Agents adjust their opinion by forming averages of opinions of others. But their choice of others is restricted by the assumption of bounded confidence. This means that an agent is only willing to adjust towards other agents when they have an opinion which is closer then a certain bound of confidence to their own opinion. If the bound of confidence is high a consensus forms, if it is lower a certain number of parties forms.

In the talk it is shown how the final distribution of political parties (their number, location and size) is shaped by different parameters of the model [5]. This includes the impact of the dimensionality of the opinion space [6], and heterogeneity of confidence bounds. One interesting effect is that under certain conditions it is easier for the agent society to find consensus (one party) when confidence bounds are lower.