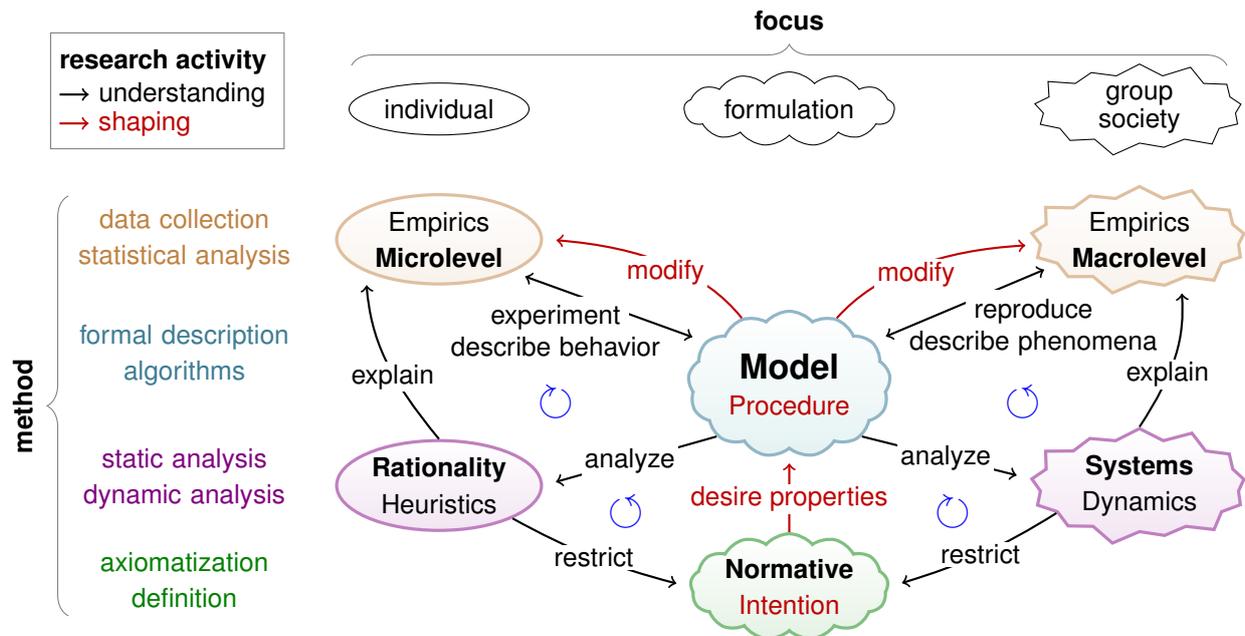


Research Concept for Studying Opinion Dynamics and other Socio-Economic Systems

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My research concept integrates six perspectives centered around formal modeling which link the normative perspective to the positivist empirical perspectives as well as the micro- to the macro-level. Research projects typically focus on one circle (↻) of switching perspectives leading to different modelling approaches which are experiment-driven, data-driven, mechanism-driven, or systems-dynamics-driven. Development of applications follows →.



The modeling perspective is to describe mathematically and algorithmically the individual, social, and political process of opinion dynamics among many actors including the procedures of deliberation and collective decision. This includes the definition of aggregation procedures, games of opinion formation and collective decisions by actions and payoffs, as well as agent-based stochastic dynamical systems.



The rational-choice perspective of decision and game theory is to analyze rational behavior of opinion utterance, belief change, preference change, and individual decision to provide a framework for normative intentions regarding procedures of collective decision or to explain observed behavior.



The empirical microlevel is to observe individual behavior in social and political context. In the interplay with modeling this perspective inspires behavioral assumptions in models, validates models by experimental tests, and demonstrates the practical usability of procedures.



The systems perspective analyzes static, dynamic and stochastic equilibria of the societal system to explain how it self-organizes the evolution of consensus, bipolarization, fragmentation and extremism. It uses computer simulations, the theory of dynamical systems, and the analogy of human crowds to physical many-particle systems, focusing on phase transitions and patterns of bifurcation.



The empirical macrolevel is to observe aggregated data on the committee and society level. In the interplay with modeling it inspires macroscopic descriptions of opinion landscapes and their dynamics which a model shall reproduce and change in desired ways.



From a normative social choice perspective we formulate intentions and desired properties a procedure of opinion dynamics and collective decision shall fulfill or foster. For example: truthful utterance, achievement of a (meta)consensus, most correct estimations, increase of welfare, or general acceptance of decisions.