

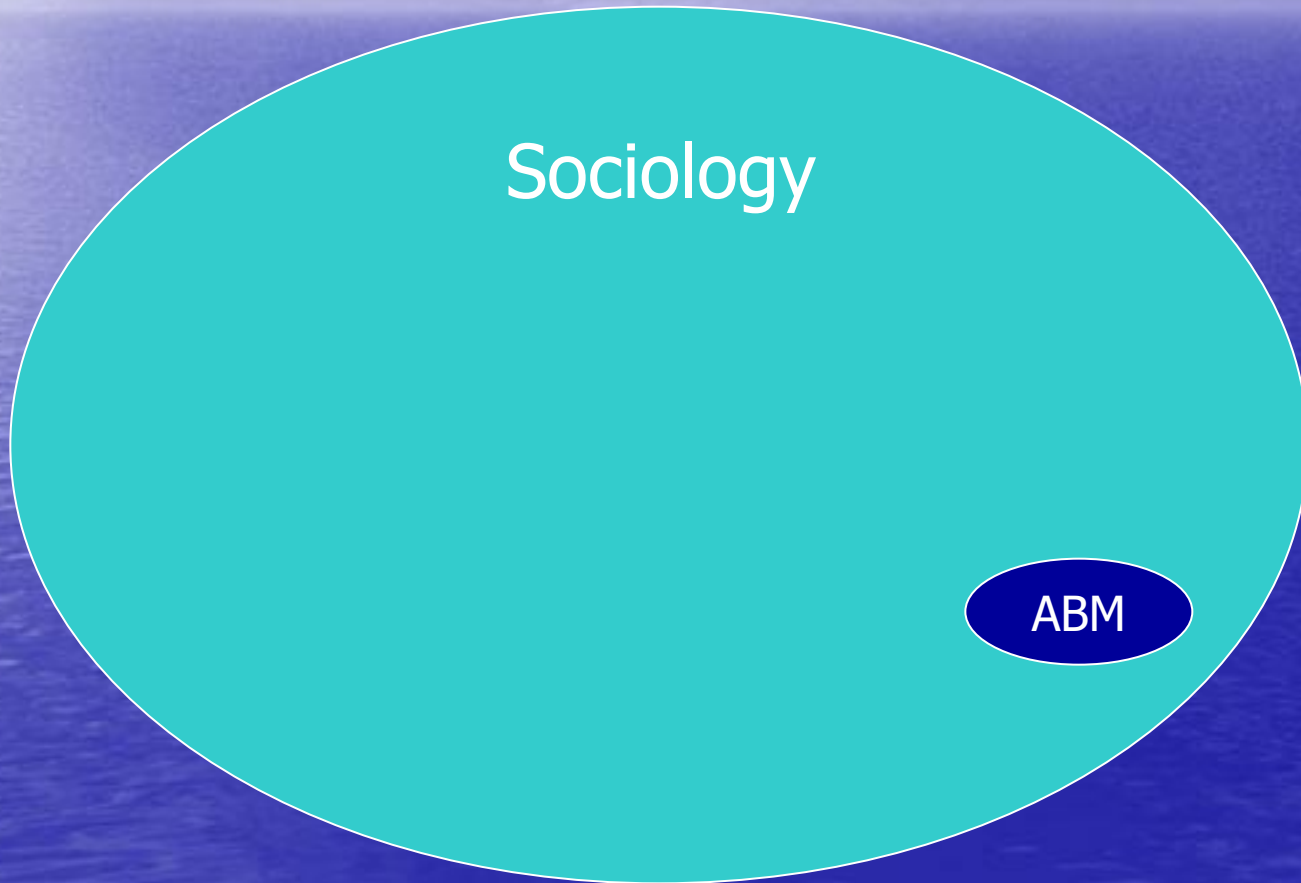
# Does Agent-based Modeling Survive in Sociology?

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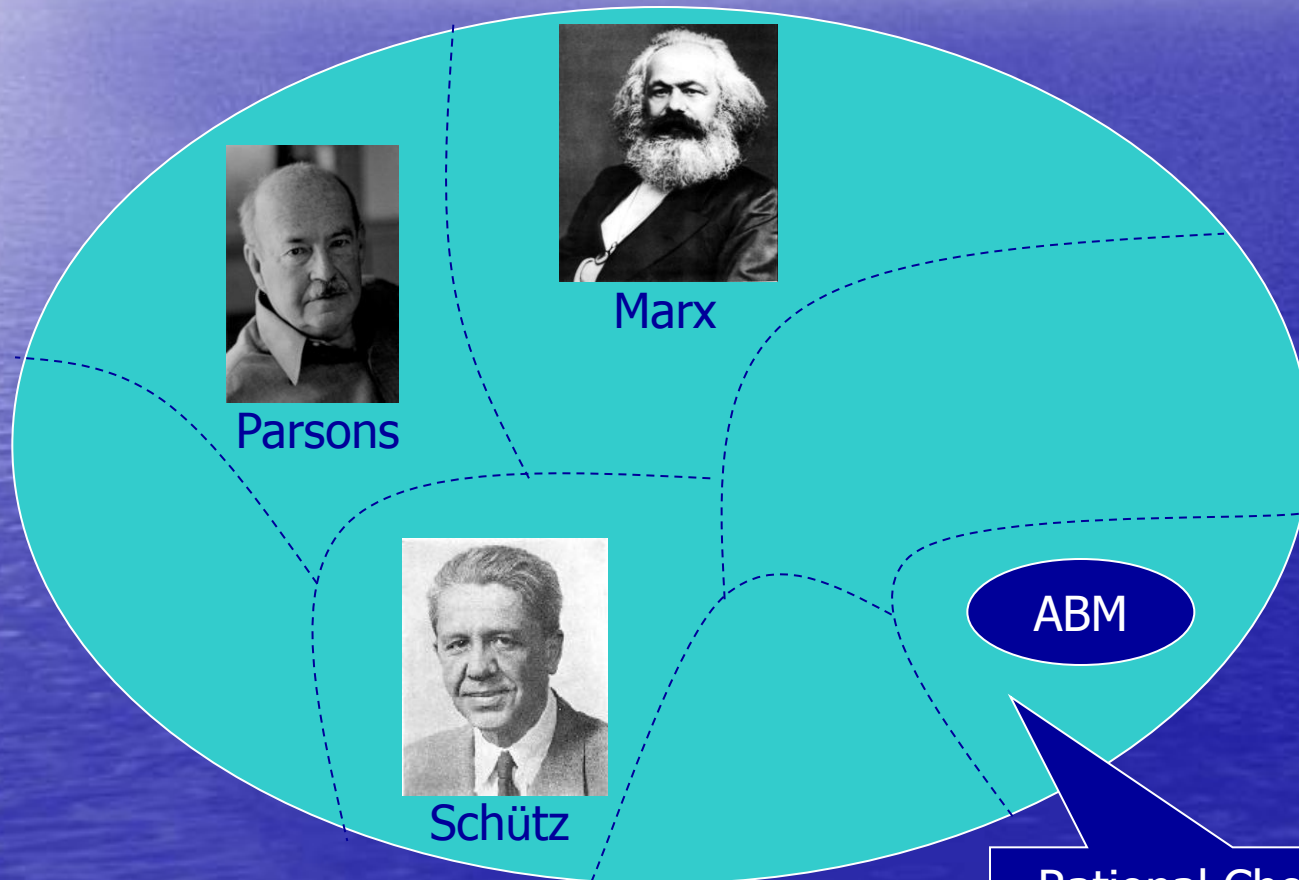


# Current Status of ABM in Sociology



# Why?: Diversity in Sociology

## Sociology



# Strength of ABM

- Explaining the emergence of (behavioral) patterns
  - Mutual cooperation (Axelrod)
  - Trust (Macy and Skvoretz; Macy and Sato)
  - Residential segregation (Mare and Bruch)
  - Social Networking (Buskens and van de Rijt)
- ABM's high fitness in rational choice theory and social networks analysis

# Weakness of ABM

- Does ABM explain the emergence of *social order*?
  - Social order is more than observable behavioral patterns.
  - It consists of two elements: stable behavioral patterns and actors' expectations of them.
- There is a conceptual gap between ABM and conventional theories of social order.

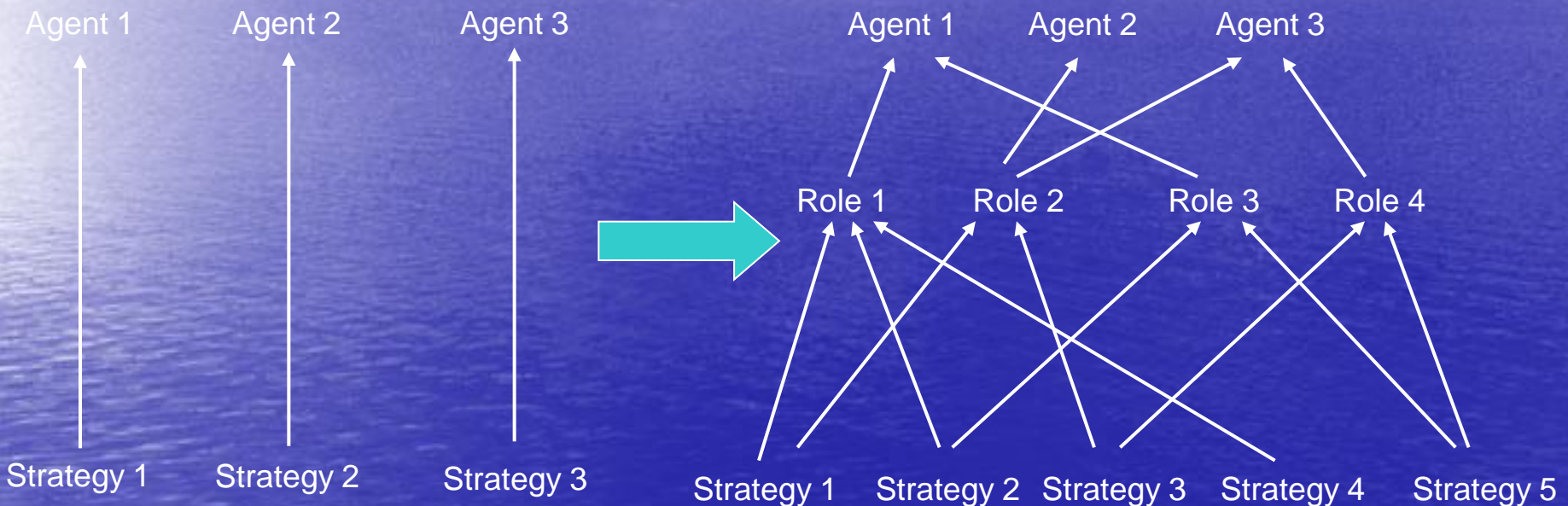
# Focusing on Social Structure

- Social structure: Embodiment of social order
- Two types of social structure
  - Structure of social networks
    - Easy to formulate by ABM
  - Structure of roles and allocation of actors and resources to them
    - Difficult to formulate by ABM

# Why Is It Difficult to Formulate The Second Type of Social Structure?

- A role is more complex than an agent.
- A role is a bundle of expectations by incumbents of other roles (Parsons).
- Example: Professor as a role
  - Teaching, research, administration, etc
- Task of ABM: Explain the emergence or differentiation of roles

# A Possible Direction

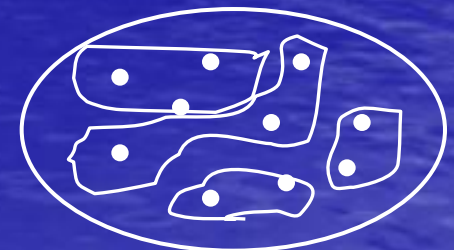
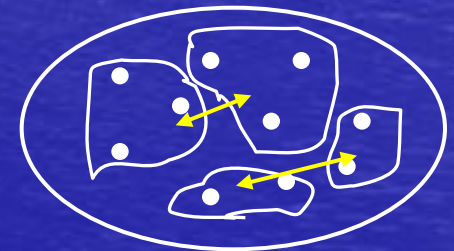
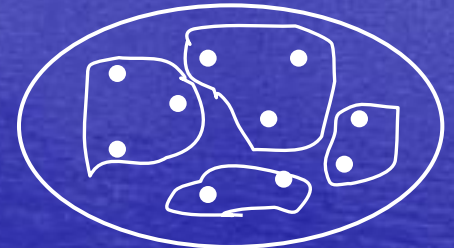
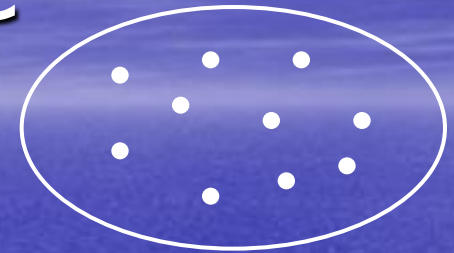


Two mechanisms to be clarified:

- 1) How are multiple strategies allocated to a role? (Focused on in this presentation)
- 2) How does an agent take a set of roles?

# A Possible Mechanism Allocating Strategies to A Role

- A set of possible strategies are defined.
- Subsets of the strategies (roles) are randomly created.
- Agents interact and choose strategies based on expectations.
- Agents update their expectations.
- Some roles are picked up, and strategies of a role become disbanded. Disbanded strategies are newly bundled to create new roles.



# What Is To Be Done?

- Elaborate the concept of role
  - E.g. James Montgomery
- Formulate the emergence of roles discussed in sociology
- New learning process
  - Backward-looking rationality + Expectation
  - Fictitious play?