

What Actually Stops Us Going “Beyond” Schelling and Axelrod: Three Challenges

Edmund Chattoe-Brown

Department of Sociology, University of Leicester, University Road, Leicester, LE1
7RH

ecb18@le.ac.uk

Abstract (384 words)

ABM finds itself in the unusual position of having a methodology that almost everyone seems to agree on, with examples showing that it works (which, incidentally almost nobody cites) but, at the same time, almost nobody follows. This presentation shows how, in three different ways, this oddity harms the possibility of really going “beyond” Schelling and Axelrod.

The first challenge involves “element selection”. Across the social sciences there are many plausible mechanisms, processes or elements of plausible (or at least non implausible) ABM (for example networks, decision, learning, organisations and so on). How do we decide (and much more importantly how do we justify) the selection of some elements (and, either explicitly or implicitly, the rejection of others) in a particular ABM? One possible solution is proposed, using “switchable models” (which are designed to differ only in single elements). This approach can be seen as a variant of sensitivity analysis but with distinctive features that are particularly relevant to interdisciplinary research using ABM.

The second challenge is dealing with “heaps of models”. Because there currently seems to be no principled basis for element selection, models simply emphasise the interests or disciplinary backgrounds of their designers or evolve until they deliver the “right kind” of answer (for example cooperation or failure to cooperate in the Prisoner’s Dilemma). The result of this is lots of “not implausible” models with no basis on which any of them can be eliminated from further discussion. Several solutions to this problem are proposed: Collective work on testbeds, requirements for proper evidence to back specific claims, more attention to the kind of validation proposed in the standard ABM methodology and modular design to reflect distinctive expertise across the social sciences.

The third challenge is that of “research design” and validation. What would it mean to say that we had supported (or failed to support) a particular variant of the Schelling (or Axelrod) models with evidence? This challenge obliges us to deal with a variety of issues, such as available data, how ABM research needs to be conducted to make it progressive, the full implications of ABM methodology (as put forward by Gilbert and Troitzsch, and Epstein for example) and what we think we are doing when we initialise a model. This challenge will be illustrated using an example of opinion dynamics.