The AGORA

Newsletter of the Rationality and Society Section of the American Sociological Association and the Research Committee 45 on Rational Choice of the International Sociological Association

Winter 2018/Spring 2019

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From the Chair`s Desk (ASA)

Jun Kobayashi

Dear Rationality and Society Colleagues,
Hope everything is going well with you all. I took over leadership of our section from Jane Sell at the last annual meeting in Philadelphia. She has, we all know, devoted herself in enhancing section vitality. I would like to express my deepest gratitude to Jane.

Let me quickly look back past year's activities. In September 2017, Jane asked us to join the Altruism, Morality and Social Solidarity section while asking them to join us. This ended up in beautiful reciprocity: Both sections obtained new members.

One story should be shared among us. Our section faced a possibility of probation. In January 2018, Jane had a phone conference with ASA officers and then submitted a report. Thanks to her efforts, in March we heard that the section was not to be put on probation. We cannot be, still, too vigilant about the membership.

Our Philadelphia meetings successfully demonstrated that our section was, as it has been, a small but (therefore?) vibrant one. We hosted two sessions. One was "Empirical Advances in Rationality and Society" organized by Katie Corcoran with cutting-edge three papers. The other was an invited session, organized by Jane, featuring a discussion of the general perspectives of Rationality and Society. The speakers include Jonathan Turner. While Peter Hedström was originally scheduled, a surgery interfered and so Jane and I served as discussants. We enjoyed rigorous but fruitful interactions.

The business meeting followed the invited session. James Coleman Award for Outstanding Article, chaired

theoretical approaches in sociology. Starting with this edition, we will print a series of interviews with distinguished scholar who might help us better understand how RCTs are perceived by sociologists in general and enable us to better appreciate alternative approaches to the same research questions we all are most intrigued by.

Interview: Gianluca Manzo interviewed by Wojtek Przepiorka

WP: Gianluca, you are a declared critic of rational choice approaches in sociology. At the same time, you are an active member of RC45. RC45 and its ASA sister section Rationality & Society are small and therefore grateful for every member. Is your membership an act of altruism?

GM: Human choices often respond to a variety of intertwined logics. I clearly feel very sympathetic with actor-centered explanations. Differently from other (structural) methodological individualists, however, I see rationality only as a specific way in which actions can be depicted. Rationality can in turn be conceived in many different ways, and it seems to me empirically proved that actors do not spend all their time to develop more or less elaborated systems of reasons. Thus it is with respect to the supposedly logical priority and empirical generalizability of (a certain type of) reason-based explanations that you legitimately can label me as "declared critic of rational choice approaches in sociology". Several other core general features of this theoretical perspective instead –like abstraction, conceptual rigor, deduction, formalization, and micro-foundations– are perfectly in line with my own way of doing sociology. These fundamental, general features make me feel at home in RC45, in its sister ASA section as well as in the closely-related Math Soc ASA section. I have the impression that the kind of sociology I like is better represented in these sections than elsewhere. At the same time, since, as you said, those sections are small, I think that, through my involvement, I can help a certain kind of sociology to survive. In sum, it seems to me that scientific identity (being part of a certain kind of sociology), intellectual self-interest (benefiting from discussions with colleagues who can understand better than others what I do), and disciplinary altruism (contribute to the existence of a small area of contemporary sociology) are all reasons that explain my involvement in RC45 and related professional groups.

WP: Your preferred methodology is agent-based modelling and simulation. It seems rational from a mere modelling perspective to start with the assumption that agents are rational and self-regarding in the pursuit of their goals and relax these assumptions later, if correspondence with the explanandum cannot be reached. What's wrong with this logic of prioritization?

GM: The heuristic value of the principle of decreasing abstraction is indisputable to me. Like any assumption that we posit at the beginning of a modeling exercise, however, that of actors' selfishness should be first assessed with respect to the available empirical evidence suggesting that this assumption is reasonable for the type of explanandum (and the context where it takes place) that we are trying to understand. Without sufficient empirical elements justifying this assumption, before choosing it as starting point, I would still consider its "companion assumptions". By this I mean those assumptions that almost automatically follow from a given "mother" assumption, often to make this assumption treatable. With respect to self-selfishness, among these "companion assumptions", two of them seem to me especially unrealistic: a/ homogeneity (all actors are assumed to follow the same logic of action); b/ solipsism (actors are assumed to develop their reasoning without communicating with other actors). Obviously it is possible to relax, or imagine turnarounds for those companion assumptions of selfishness, but this implies an increase in the model complexity and, in particular when interactions are introduced in the model, additional questionable companion assumptions like assuming actors' cognitive abilities to make computations that are difficult to perform even for modelers themselves (think of the computation complexity of many advanced game-theoretic models). Thus, although I do not see anything wrong with starting the procedure of

decreasing abstraction with the assumptions of self-regarding preferences, I do not see any compelling reason to consider this assumption as a "natural" starting point. The often-quoted merit of this assumption —i.e. simplicity— goes in hand with the unrealism of some of its major "companion" assumptions. In this respect, the attractiveness of agent-based modeling is that its algorithmic nature allows the modeler to start with any assumptions that seem plausible, thus downgrading simplicity (and analytic tractability) from being the primary selection criterion in the choice of actor-level starting assumptions.

WP: Agent-based modeling is an approach many of us embrace with enthusiasm for the very reasons you outline above. But do these reasons make it a compelling approach? What is the empirical basis of plausibility, or what are its companion assumptions?

GM: This question in fact contains three different questions! Please let me be brief about the second one related to plausibility. This is indeed an epistemological question that does not seem to me specific to agent-based modeling. After all, a method simply is a procedure to transform some inputs into some outputs. Assumptions are part of the inputs. The various elements that we mobilize to argue in favor of the plausibility of a given assumption are always exogenous to the method we are using to deduce implications from that assumption. In this sense, agent-based computational models are not different from other formal methods. Now, as to the compelling character of agent-based modeling, the answer obviously depends on what you mean by "compelling". To me, a method is compelling if the following four generic features are present: a/ transparency (i.e. the possibility to understand the way inputs are transformed into outputs); b/ inspectability (i.e. the possibility to inspect the internal functioning of the technical devices that allow the input-output transformation); c/ verifiability (i.e. the possibility to discover errors in the specific procedures that we write to move from inputs to outputs); d/ replicability (i.e. the possibility for an external observer to reproduce the procedures transforming inputs into outputs). Agent-based computational models possess all these features. They are often attacked with respect to the supposedly lack of a/. I do think that this critique is based on a misperception. It is true that many of us, for intellectual laziness, lack of space, and/or lack of sufficient technical skills, still use an agent-based model as a black-box tool. But a method's weakness cannot be proved on the basis of its users' incompetency. Bad practices should always be distinguished from methods' intrinsic limitations. Finally, as to the companion assumptions of agent-based computational models, since any potentially explanatory mechanism can be designed from scratch within this modeling approach, its companion assumptions mainly depend on the primary assumptions posed to design the substantive mechanism of interest. I had hard time to find companion assumptions that are intrinsically attached to the method itself. On thought, however, "multilevelness" and "sequentiality" could be the answer. By "multilevelness", I mean that an agent-based model requires to frame the research question in terms of transitions across levels of analysis. The explanatory mechanism must be posed at some lower level —or smaller scale, if you prefer— than the patterns to be explained. The method does not require a specific content for these levels but, whatever type(s) of entities you put at the lower level, you get the best from the method as long as your point is to say something about the generative power of the lower-level mechanism (which could itself represent several types of entities at several levels of analysis). In this sense the method is intrinsically reductionist. By "sequentiality", I mean that, when programming an ABM, we are required to establish a temporal order among actions, interactions, and loops across levels of analysis. This does not mean that time cannot be itself modeled within an agent-based model but that, as long as the mechanisms of interest are designed and implemented on serial computer architectures, purely parallel processes can be approximated (through complex technical turnarounds) but not directly modeled.

WP: It is reassuring to read your maintaining "quality" criteria for ABM that also make (other) rational choice approaches (e.g., game theoretic models) compelling. It is indeed the lack of transparency, or better, my lack of understanding how inputs are transformed into outputs, that made me abandon ABM as a method for theory building. What do you recommend to those who feel that ABM is a valuable tool but find it lacking transparency, and what do you recommend agent-based modelers can do to change this perspective on ABM (on top of being competent and diligent)?

GM: As I said, an agent-based model is in its essence a numerical device implemented into a computer program. Its internal functioning can thus be inspected at length at virtually no cost. At the moment it is true however that there is no standardized procedure to accomplish this task. Some proposed to use existing mathematic techniques like differential equations or Markov chain models to describe the way simulated runs of a given model move from one state to another. My intuition is that we need procedures with higher granularity and tailored to the discrete nature of agent-based models as well as their dynamic multilevelness. I am not sure that sociologists have the technical skills to create on their own these methods but, in other fields, like the analysis of social networks, for instance, we observed that sociologists provided (and continue to do so) social statisticians and computer scientists with the inputs to invent and implement methods adapted to the specific needs of sociological inquiry. I do not see why agent-based models could not benefit from similar virtuous cross-disciplinary collaborations. In the meantime, I would recommend to follow three heuristics during the study of a specific agent-based model: 1/ if the model simulates several mechanisms, then try to introduce them sequentially, if possible from the simplest to the most complex; 2/ in addition to indicators quantifying the simulated outcome(s) of interest, collect data on how the value of agent- and network-level properties change during simulation runs; 3/ depending on the intuitions you have developed on the model's functioning after going through 1/ and 2/, make surgery interventions on some pieces of the model (turning off some of them, altering them, change their timing, and so on), and assess the impact of these modifications on the simulated output(s). The combination of these heuristics help to gain insights on the internal functioning of a given simulated model, which obviously is a crucial ingredient to maximize its explanatory value. Any diligent user usually performs these tasks in the background but this is rarely reported on in a systematic manner in the final publication. Thus my last recommendation would be always to write dedicated sections on "understanding the model dynamic" explaining how the simulation moves from the inputs to the outputs, and what procedures we followed to gain this understanding. I am not sure that this practice could persuade skeptical scholars like you but it should at least prove that the supposed lack of transparency of agent-based models is a problem of research practices, and not an intrinsic limitation of the method.

Gianluca Manzo received a PhD in Social Sciences jointly from Sorbonne and Trento University in 2006. He currently is a research fellow in Sociology at the Centre National de la Recherche Scientifique (CNRS) in Paris. He hold visitorships at several places, including Nuffield College, Columbia University, European University Institute, and the universities of Oslo, Manheim and Cologne. Gianluca investigates the concept of social mechanism, the notion of causality, and the history of analytical sociology; substantively, he studied educational inequalities, relative deprivation, reputation, and the diffusion of innovations through various combinations of statistical methods, social network analysis, and agent-based computational models. Gianluca's research was funded by the French National Research Agency (ANR) and awarded by the American Sociological Association (Outstanding Article Award in Mathematical Sociology) and the International Sociological Association (Best Junior Theorist Paper, special mention). He served as vice-president of the International Network of Analytical Sociology from 2012 to 2018.

The interview was conducted via e-mail between October 11 and December 6, 2018.

Recent Publications of Interest

Erikson, Emily and Mark Hamilton. 2018. "Companies and the Rise of Economic Thought" *American Journal of Sociology*, vol. 124, no. 1.

Erikson, Emily. June 2018. "How Group Events Can Shape Network Processes" *Sociological Theory*, Vol. 36, Issue 2, p. 187-193.

Erikson, Emily and Sampsa Samila. 2018. "Networks, Institutions, and Uncertainty: Information Flow in Early Modern Markets," *Journal of Economic History*.

Ermakoff, Ivan. 2017. "Cognition, Emotions and Collective Alignment: A Response to Collins," *American Journal of Sociology*, 122(6): 284-291.

Ermakoff, Ivan. 2017. "Shadow Plays: On Theory's Perennial Challenges," *Sociological Theory*, 35(2): 128-137.

Opp, Karl-Dieter. 2018. "The Interdependence of Spontaneous Order and Institutional Design. Table Manners, Language, Daylight Saving Time and the