



YCCSA Seminar Series Summer 2019

An interdisciplinary seminar series hosted by the York Cross-disciplinary Centre for Systems Analysis aimed at researchers from all disciplines

Case-based methods, micro-simulation and agent-based modelling: bridging the divide to leverage their combined strengths

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Ron Cooke Hub, RCH/248, Lakehouse at 13:30

Abstract:

We are in the middle of a several-year project to harness the respective strengths of case-based modelling, micro-simulation and agent-based modelling for advancing social inquiry. Three of the leading camps for studying social complexity are case-based methods (CBM), micro-simulation (MS) and agent-based modelling (ABM). Despite the potential epistemological links between 'cases' and 'agents,' these three camps have yet to leverage their combined strengths. A bridge can be built, however, by drawing on Andrew Abbott's insight that 'agents are cases doing things', Byrne's suggestion that 'cases are complex systems with agency', and by viewing CBM, MS and ABM within the broader trend towards computational modelling of cases. To demonstrate the utility of this bridge, we describe how CBM can utilise ABM to identify case-based trends; explore the interactions and collective behaviour of cases; and study different scenarios. We also describe how ABM can utilise CBM to identify agent types; construct agent behaviour rules; and link these to outcomes to calibrate and validate model results. To further demonstrate the bridge, I review (1) a public health study we conducted that made initial steps in combining CBM and ABM and also (2) a software package (COMPLEX-IT) we have developed that offers a new case-based microsimulation approach to modelling.

The seminar includes a refreshment break to fuel interdisciplinary discussion

Ron Cooke Hub is on Heslington East Campus – accessible by free bus services

Nos. 66 and UB1 running at frequent intervals from Heslington West.

The YCCSA Seminar room is on the second floor