

Ontological politics in a world of political ontologies

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Abstract.

The myriad of complex problems abounding today call for undisciplined plurality. In this respect, the effort to use qualitative data to inform agent based models is a commendable project, however, it is not one without difficulties. Some of these pertain to the practice of modelling itself, others are of a more general nature, and are similar to those that have arisen, and continue to persist, in other collaborative research endeavours. This paper firstly, lays out some of the challenges that have surfaced in the current environment of *co-operative* research elsewhere, and which provide the contextual backdrop to this critique. Subsequently, a number of general philosophical and sociological critiques of agent based modelling and, thus, of this project are made. However, in doing so a call for caution rather than outright criticism is put forward.

1. Complex problems and the Integration imperative.

In the spirit of this argument, context matters! Backgrounding this critique is the current academic environment that, very much focused on complex problems, increasingly calls for broad collaboration, drawing across (and beyond) disciplines, from the natural to the social sciences. These calls themselves, are situated within a wider social, political and ecological *reality* that certainly requires collaboration and, arguably, *further* extension of that collaboration - to different traditions of thought entirely. Given this, this call could (should?) be read as one that requires a plurality of views, and knowledge. The (very real) anxieties of this (post?) political moment – suggested (not un-problematically) as the *Anthropocene* – demands pluralist, non-reductive strategies (e.g. Blaser 2009; Blaser 2014; Castree et al 2014; Kohn 2015; Viveiros de Castro 2004). Despite this, however, for many of us working in the margins and the interstices, the manner in which this is being answered (once one scratches the surface) seems to betray, what Bernstein (1989) referred to as, a polemic, flabby, and perhaps even defensive character. Though couched in collaborative dressing, such calls have been charged with displaying a methodological monistic hue, an underlying integration imperative (Castree et al 2014; Klenk and Meehan 2015); with the broad focus in many spaces remaining (!) centred on the individual – their perceptions and preferences (Castree 2015).¹ Such a hue and focus, sits uneasy in a world of ontological politics. Ontology matters (Epstein 2016b). All ontologies are political!²

¹ For a detailed, and more nuanced discussion on this backdrop see, for example, Castree et al 2014; Castree 2015; Klenk and Meehan 2015; Lövbrand et al 2015.

² Discussions, conceptualisations and explicit considerations of ontology (or ontologies), in a broad sense, has over the past number of years gained a certain traction across a myriad of disciplines, sub-disciplines and fields - from Anthropology, Science and Technology Studies, Political Ecology, Social Ontology and so on. It is beyond the scope, or requirements of this short paper to go into any meaningful discussion with respect to this 'turn' (but see, for example, Blaser 2009; Blaser 2013; Epstein 2016; Holbraad et al 2014; Kohn 2015; Mol 1999; Viveiros de Castro 2004). For the purposes here, it is sufficient to think of ontology in terms of the assumptions through which we apprehend (Kohn 2015) and *depict* 'reality' – rather than making any grand metaphysical claim. Hay's (2011) understanding of ontological decisions as concerning the types of entities we assume, and whether we

2. Agent based models and qualitative inquiry.

Qualitative evidence has often been seen as "unscientific", critiqued as: subjective, biased, unreliable and context-specific. These critiques are not without merit — qualitative evidence *does* have its difficulties — but it also has its own advantages and the difficulties are not sufficient to justify ignoring it (Edmonds 2015).

So, how does this relate to the question as to whether or not there are critiques to be levelled at the ongoing attempt(s) to utilise qualitative data to inform Agent Based Models (ABMs)? Arguably, a lot of the above argument echoes some of the *potential* dangers of such a project. Yes. It is true that for some academics, qualitative and quantitative evidence are incommensurable – that's ok, this is in *some ways* simply reflective of different ways of seeing. Different ways of seeing are important, and it's not at all clear that commensurability is required. This aside for now, in the event that this is desirable, it is also true that ABMs are a possible vehicle for bridging this gap. However, as per the above outlined concerns raised, whether or not finding a way where both approaches can be folded in together is or should be the objective for either side of the divide is certainly open to question.

Notwithstanding this, Edmonds (2015) has argued that ABM is particularly suited for encoding some aspects the qualitative data, while at the same time qualitative data can go a long way to capturing the micro-level data that is required in building an ABM. Similarly, Yang and Gilbert (2008) highlight that such data can provide information with respect to the social processes, and relationships (or interactions) among and between actors, which is required in building *a* model, and can be hugely beneficial in, subsequently, validating *the* model, given its ability to capture also some contextual macro features which may be verified with the outcomes generated by *that* model. So in this sense, yes - *narrative textual evidence* can provide a good basis for informing the behavioural rules of virtual agents (and more). The work in this area verifies this, and most certainly, such an approach can lend a certain realism to a model (e.g. Bharwani et al 2015). Furthermore, given that, to date, evidence driven models remain, somewhat, thin on the ground, adopting such a qualitative strategy may go some way to closing this gap (ibid).

3. A philosophical and sociological critique (and some questions).

As per the above argument, there seems to be a decent amount of evidence that there are gains to be had – certainly in terms of more realistic models - from using qualitative data to inform ABMs. There are, however, a number of philosophical and sociological critiques that may be levelled at ABM (in general), which could render it an untenable approach for many perspectives working within (and around) the social sciences. In this respect, two issues in particular are raised here: ABM's (intentional or unintentional, and often mentioned, but seemingly persistent) methodological individualistic hue, and its demand for simplification. The second point here clearly entails limitations in terms of the contextual, deeply situated analysis that is at the core of much qualitative research. In this sense here,

choose to conduct our analysis in terms of identities, individuals, collectives, states, regimes, systems, or something else, reflects certain ontological choices and assumptions—most obviously about the character, nature, and, indeed, 'reality' of each as ontological entities - is reasonably useful here. These choices, even if they are only implicit (or we have not even thought about them) have epistemological, methodological, and practical consequences (ibid). In short, in its most basic sense ontology is taken to demarcate what is 'real', and when coupled with the word politics it may be taken to signify that what is taken to be 'real' is not necessarily a given (Mol 1999). Thus, the term politics is taken (in part and among others) to signify that this 'reality' is both open and contested, and is historically, culturally, and materially situated (ibid).

arguably, this is an area that those adopting qualitative approaches to modelling could, potentially, (somewhat?) overcome; which is why this paper is directed at this session.

3.1. ABM's apparent Methodological Individualism.

It has been suggested that ABM and qualitative research, ontologically and epistemologically speaking, are not very removed from one another; with context, time, mechanisms, processes, and sequences of events being important to both (Yang & Gilbert, 2008).³ Despite this, however, a number of *misconceptions* about social ontology, concerning the relation between macro and micro properties, remain widespread in modelling (as is the case in social theory also) (Epstein 2012; Epstein 2016a). Here, the (long-standing) argument made, is that many models display a level of methodological individualism (MI), and a leaning towards a unidirectional micro to macro level emergence (Sawyer in, Conte et al 2011; Epstein 2012; O Sullivan & Hackley 2000; Venturini, Jensen & Latour 2015) that may certainly make *some* social scientists uncomfortable (e.g. see Bourdieu 1989; Emirbayer 1997; Knorr Cetina 1988).⁴

Indeed, there *is* much sociological evidence to suggest that such a stance is (at best) limited (Sawyer, in Conte et al 2011), even for basic 'facts' about groups of people (Epstein 2016a). For example, ongoing work within the subfield of Social Ontology (as elsewhere) makes the case that group intention and action can, and often does depend on more than the individuals within the group - external forces, power, hierarchies, meso and macro forces etc. matter (ibid). Non-human materialities matter (e.g. Elder-Vass, 2017). Indeed, similar arguments, with respect to *new*-materialisms, have much traction in and around Science and Technology Studies, and Political Ecology. Essentially, the premise of MI, whether ontological, or explanatory (as is sometimes posited), in short, are questionable (Epstein 2016a). Related premises of weak individualism, or 'structural individualism' (e.g. Hedström & Ylikoski 2010; Marchionni & Ylikoski, 2013) are equally dubious.⁵ Despite this, however, many ABMs seem stuck in and around this assumption. Is this methodological individualism (taken as sound or otherwise), grounded in an ontological commitment? ⁶

Although *all* research is underpinned by epistemological and ontological assumptions; a lot of models are not explicit about the worldviews and assumptions underpinning them, and at times leave the reader unsure as to whether these have been given consideration at all. As Epstein (2012) has highlighted, even though it may not be glaringly obvious that ontological assumptions are important in ABM, they are certainly there – even if only implicitly. In this sense, there *seems* to be an affinity, as hinted at above, between the *explicit* ontological, and methodological assumptions underpinning the mechanistic

³ This statement merits clarification that, in terms of underlying assumptions 'qualitative research' is philosophically and methodologically diverse. Which may call into question whether this is *always* going to be the case – for some traditions of qualitative research this might not be so.

⁴ The proposition that all complex social situations, institutions or events can be explained by deducing them to the level of the individual (Sawyer, in Conte et al 2011).

⁵ Some recent discussions of this kind have come from in and around Analytical Sociology (AS). However, Little (2012) has argued that AS, despite postulations with respect to structural individualism, seems to be explicitly grounded in MI, with some possible commitment to methodological localism. Social outcomes are explained on the basis of the actions of individuals. The micro level is the focus, any other level can always be unpacked to micro-foundations – thus, the keen focus is centred on the individual actor.

⁶ The view that human individuals are the sole, unique, and ultimate constituents of social reality to which all else is reducible (Hay 2011).

perspective of Analytical Sociology (AS) (e.g. see Hedström & Ylikoski 2010; Little 2012)⁷ and those apparent in ABM.⁸ Indeed, Hedström & Ylikoski, (2010) have professed such a kinship. However, whether this affinity (broadly speaking) is bidirectional seems open to question - it is unclear whether the methodological individualism displayed by many ABMs is simply a symptom of an approach that has ‘grown up’ with a focus on generative mechanisms (Marchoni & Ylikoski 2013), an ad hoc style, or whether it reflects a broad based acceptance of the same premises as AS.

Sawyer, for example, has suggested that ABM displays this MI, largely, due to unquestioned assumptions, rather than pragmatic considerations, or empirical evidence. Further suggesting that this is, possibly, a feature of an earlier relation with economic theory (one does not have to look far to find ABMs with simplistic economic agents, or their bounded cousins), with AI, and of cultural biases towards individualistic thinking, more generally. In short, this appears to be an unquestioned assumption, rather than a foundational argument (Sawyer, in Conte et al 2011) as it is with AS. Similarly, Epstein (2012) has argued that (computationally) ABM is not inherently individualistic (i.e. this is not a limitation that is built into ABM, per say). As such, this is something that can, perhaps, be overcome (somewhat). In relation to this, he highlights, however, that given that some of the issues surrounding this are in many instances overlooked completely (by the researcher), models often don’t succeed in avoiding even the simplest forms of this.⁹

Whichever the case, the proposition that individuals are “a stable and unproblematic source of social action” or “causal agents who produce, mediated by their dispositions and beliefs, a steady flow of social phenomena” is at odds with *a lot* of perspectives within social science (see Knorr Cetina 1988, p. 24). Likewise, *any* kind of micro-macro dualism/determinism/essentialism is going to be problematic, for those sharing the view that the macro and micro cannot be ontologically separated at all, but rather are co-constituted, and this is the case even in an actor orientated approach, that prioritises individual meaning and action (Long and Long 1992). Further, the question of embeddedness certainly arises (Granovetter 1985; Polanyi 1944), while a relational theorist will reject the notion outright the one can posit discrete, pre-given units such as the individual or society as the definitive starting point of social analysis (Bourdieu 1989; Emirbayer 1997). Indeed, Venturini, Jensen & Latour (2015) go so far as to make the claim that the *last* thing social scientists need are models that break them in micro/macro oppositions, highlighting that empirical evidence shows that social structures do not simply jump up from micro interactions, but rather there is a dialectical relationship of constant flux between and among both of these levels.¹⁰

⁷ AS makes an explicit commitment to ‘structural individualism’- all social facts, their structure and change, are in principle explicable in terms of individuals, their properties, actions, and relations to one another. From this viewpoint, macro level outcomes can only be explained through explicit consideration of the micro (Hedström & Ylikoski 2010). In short, as stated, structural individualism looks a lot like MI, and is explicitly grounded in MI.

⁸ As one would expect the ontological base of AS is open to many of the same critiques here – context, and temporality matters, meso and macro causal levels matter. AS fails to deal with these (Little 2012).

⁹ Drawing on this argument - that it comes down to the designer of the model rather than the approach - it would seem plausible to suggest that model design should go hand in hand with some serious thought about the assumptions that are being made about social reality. Indeed, Lövbrand et al (2015) have made the case that, even though it may be uncomfortable, it is crucial that we (all researchers) consider carefully ontological assumptions that inform our interpretation(s) of the world, and keep an open mind to experimenting with, or at least considering new ones, asserting that “Constructive exchange across scholarly pursuits involves a sustained interrogation of, and reflexive sensibility to, taken-for-granted assumptions...” (ibid p. 217).

3.2. Simplification versus messy reality.

A further issue to be raised, and one which is done so with recognition that this project is, in ways, attempting to close this gap, and also in acknowledgment that we all abstract somehow, is the level of simplification that is required in ABM, and which may simply not be compatible with a qualitative approach. O Sullivan & Hackley (2000), for example, highlight that within ABM there is a strong commitment to minimal behavioural complexity, in order to make the process of modelling feasible, and the resulting model understandable. Similarly, Venturini, Jensen & Latour (2015) highlight that models often entail a great degree of simplifying agents, their interactions and emergent structures, with the objective being to ‘fit’ them, and raise the issue that from “a methodological viewpoint, most simulations work *only* at the price of simplifying the properties of micro-agents, the rules of interaction and the nature of macro-structures so that they conveniently fit”. Given this, there is a danger that in the effort to translate qualitative evidence into something that can be used in a model that evidence is reduced to this entirely. While this may well add to the realism of an agent based model, it may well miss the point of a lot (all?) qualitative research, and its core is a commitment to thick, contextualised description, which is attentive to messy, and everyday realities. In this sense, it seems reasonable to suggest that the level of simplification required, in general, can be antithetical to the aim of qualitative research. Alongside this, there remains the underlying danger that if we abstract too much, the things we ‘bracket’ may be crucial in the ‘real world’. Whether a qualitative researcher can be satisfied with this is probably down to the individual him or herself. Whether this is the best way to answer questions about the world – in particular, with respect to complex challenges – is certainly up for debate. In Anna Tsing’s words: *there are bigger stories to be told here*. Which raises the question as to whether these stories can be told alongside these models?

Is there room for adopting a real commitment to embracing multiple, or mixed approaches, whereby models are built using qualitative evidence and the results are then corroborated not only with the simulation output, but also discussed, and placed within context - both historical, and structural - thereby drawing on the full richness that qualitative evidence has to offer, with wholesale integration not becoming the objective? In this sense, mere synthesis is not desirable – as suggested, for complex problems we need a plurality of theories and methodologies, rather than holistic approaches that advocate knowledge integration (Roe 1998; 2000, in Klenk and Meehan 2015). Taking Edmonds (2015) quote from the beginning of this paper – yes qualitative evidence is often criticised for being subjective and context-specific. Arguably, however, there’s a lot of room for contextually situated knowledge. Indeed, from a critical (qualitative) social science perspective, it is unconvincing that we are somehow going to overcome the need for rich, situated research that is attentive to time, space, politics, economics and culture, and can provide us with *some* insights into lived experiences. It is unlikely that a thin approach to empirical modelling could ever provide this. In short, *virtual* populations are unlikely to ever be more than a poor substitute for living, breathing people (and non-people).

4. Fallibilistic Pluralism

ABM *does* raise a number of philosophical and sociological issues – I have raised only two here. Despite these critiques, however, the overarching call here is one of caution rather than outright criticism, and much of the cause for this caution may be related to broader discussions in relation to collaborative, disciplinary hopping (and blurring) research, and how this type of research looks, and might look. In this respect, there are a number of points to reaffirm here, as have been outlined in the earlier parts of this paper. Many of the complex challenges on which researchers are focused today require a plurality of views. As such, *any* attempt to answering these, or their corresponding calls for more flexible

disciplinary approaches (which this endeavour essentially is), should not be reduced to an effort to streamline or assimilate opposing views into one integrated framework. In this sense, we should not be aiming for a single methodology, theory, or set of shared assumptions (Klenk & Meehan 2015). In acknowledgement of the above, it is clear that there is a need for a certain level of pragmatism on both sides of this divide. Thinking in terms of Bernstein's pluralisms, what is called for is an *engaged fallibilistic pluralism*.¹¹

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¹¹ Bernstein (1989) laid out a number of different types of pluralisms – fragmentary, flabby, polemical, defensive, and engaged fallibilistic pluralism. *Fragmentary pluralism* is one in which we fall back into our silos, only willing to communicate within our own safe 'thought collectives' (even if they are undisciplined). *Flabby pluralism* is where our pluralisms amount to little more than superficial poaching (I suggest that there is a danger of this within this project here). *Polemical pluralism*, whereby appeals to pluralism become little more than an ideological weapon to advance one's own orientation, without any real willingness to listen and learn from others. *Defensive pluralism*, again displays little real willingness to engage beyond mere lip service. Finally, what Bernstein referred to as *engaged fallibilistic pluralism*, is a pluralism that responsabilises each of us into taking our own fallibilities seriously, and making a real agreement that regardless of how committed and invested we may be to our own styles of thinking, we are open to listening *to others without denying or suppressing the otherness of the other... vigilant against the dual temptations of simply dismissing what others are saying by falling back on one of those standard defensive ploys where we condemn it as obscure, woolly, or trivial, or thinking we can always easily translate what is alien into our own entrenched vocabu- la* (Bernstein 1989: 14-15).

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