Science as Culture
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/csac20

Towards a Robust Realism?

Matthijs Kouw [a]

[a] Department of Technology and Society Studies, Maastricht University, The Netherlands

Available online: 21 Feb 2012

To cite this article: Matthijs Kouw (2012): Towards a Robust Realism?, Science as Culture, DOI:10.1080/09505431.2011.630724

To link to this article: http://dx.doi.org/10.1080/09505431.2011.630724

Science as Culture
2012, 1–6, iFirst

REVIEW

Towards a Robust Realism?

MATTHIJS KOUW

Department of Technology and Society Studies, Maastricht University, The Netherlands

Philosophy and Simulation: The Emergence of Synthetic Reason, by Manuel DeLanda, Continuum Books, 2011, 226 pp., $27.95.

Truth or Relevance?

According to scholars working in Science and Technology Studies (STS), the objectivity of science is not so much an explanation for the validity of knowledge, but needs to be explained itself, for example by showing how interests, technologies, and practices are intimately intertwined. Rather than asking whether knowledge is true, STS scholars delve into notions of relevance: for whom is this knowledge important? A long-standing tradition in STS, known as 'laboratory studies', starts from the observation that science does not provide neutral access to knowledge of a world 'out there', but stages the conditions under which phenomena can be (re)presented. STS can thereby draw attention to technological, institutional, and socio-political aspects of scientific practices, and the commitments of social actors involved with these practices. Such questions reverberate in recent studies of simulation practice. For example, Winsberg (2010) argues that the output of simulations is often not so much considered to be 'true', but rather 'reliable': successful applications of a particular simulation in the past establish trust in the applicability of the simulation in question on the part of scientific practitioners. Oreskes *et al.* (1994) emphasize the heuristic value of simulations, which they consider as representations 'useful for guiding further study but not susceptible to proof' (Oreskes *et al.*, 1994, p. 644). Thus, actors involved

Correspondence Address: Matthijs Kouw, Department of Technology and Society Studies, Faculty of Arts and Social Sciences, Maastricht University, Grote Gracht 90–92, Maastricht, 6211 SZ, The Netherlands. Email: matthijs.kouw@gmail.com

0950-5431 Print/1470-1189 Online/12/000001-6
http://dx.doi.org/10.1080/09505431.2011.630724

with simulation practice can see simulations in terms of pragmatic value rather than literal correspondence with complex systems, and can use simulations in a manner that enhances their imaginative capacities. Studies of simulation practice can thereby sidestep the question of truth, and yield a focus on relevance instead.

In this review I point out how DeLanda's work fails to acknowledge the notion of relevance in simulation practice. In addition, I show how his work can be problematized from the perspective of STS, in particular with regard to the repercussions of the objectivity DeLanda attributes to knowledge produced by means of computer simulations. I argue there are important parallels between the work of DeLanda and that of Isabelle Stengers, whose work, like DeLanda's, draws heavily on the thought of Gilles Deleuze. This is certainly not the first text that draws upon differences and similarities between the two aforementioned philosophers (see Mackenzie, 2005), though I point out why this encounter can be of great importance when considering the repercussions of simulation practice.

Bootstrapping Ontologies

In *Philosophy and Simulation*, DeLanda further refines the conceptual framework developed in his earlier books, and proposes a new agenda for science and philosophy. DeLanda wishes to provide scientific explanations of 'emergence': processes where 'novel properties and capacities emerge from a causal interaction' (*Philosophy and Simulation*, p. 1). Whereas science was previously preoccupied with

> simple laws acting as self-evident truths (axioms) from which all causal effects could be deduced as theorems . . . Today a scientific explanation is identified not with some logical operation, but with the more creative endeavor of *elucidating the mechanisms that produce a given effect* (p. 2, emphasis added).

DeLanda deploys a conceptual apparatus that describes mechanisms of emergence: emergent properties, capacities, and tendencies. The sharpness of a knife is an example of an *emergent property*. The shape of the cross-section of the knife makes up its sharpness, which requires the knife's metallic atoms to be arranged in such a manner that they form a triangular shape. Sharpness features emergence since individual metallic atoms cannot produce the required triangular shape. What is more, sharpness provides the knife with the *capacity* to cut things. However, this capacity remains potential without a relational event, in this case an encounter with something that has the capacity to be cut by the knife. Similarly, the metallic atoms of the knife must have the capacity to be arranged in such a manner that sharpness emerges. Finally, the knife's blade may have the *tendency* to liquefy if certain conditions change, for instance in case its environment exceeds a particular temperature. Like capacities, tendencies are closely related to relational events (e.g. rising temperatures), but also to emergent properties

since the metallic atoms of the knife need to interact in such a manner that the blade melts, something individual atoms cannot do.

Whereas tendencies can be enumerated (e.g. the states in which a particular material can be, such as solid, liquid, or gaseous), capacities are not necessarily finite due to their dependence on being affected and/or affecting innumerable other entities. In such events, DeLanda argues in Deleuzian fashion, capacities and tendencies become 'actual', but 'neither tendencies nor capacities must be actual in order to be real' (*Philosophy and Simulation*, p. 5). Here DeLanda draws upon Deleuze's actual–virtual distinction, where the virtual is not so much a 'possible' but rather fully real, waiting to be actualized. In Deleuze's ontology, the actual is not the point of departure of change and difference, but that which has been effected from potentiality, or, the virtual (Deleuze, 1994). Though tackling the nuances of the actual–virtual relationship in Deleuze's own work and his collaborations with Guattari is beyond the scope of this review, Deleuze's ontology allows DeLanda to ascribe reality to the virtual rather than brushing it off as a 'mere' possible that lacks reality.

In each of the chapters that follow after the introduction, DeLanda describes both the actual and virtual aspects of entities. The latter are defined by their emergent properties, capacities, and tendencies, which constitute a 'structure of the space of possibilities' (*Philosophy and Simulation*, p. 5) that can be explored by means of computer simulations. Chapters 1–11 are illustrations of the exploratory potential of computer simulations. Each chapter builds upon it predecessor in a process called 'bootstrapping': 'a realist ontology may be lifted by its own bootstraps by assuming a minimum of objective knowledge to get the process going and then accounting for the rest' (DeLanda, 2009, pp. 27–28). The structures of spaces of possibilities have an 'objective existence' (*Philosophy and Simulation*, p. 5) that can be investigated mathematically by the imposition of an arrangement through formalization or 'parametrizing' (p. 187). Computer simulations enable exploration by allowing experimenters to stage interactions between different entities and investigate the emergent wholes that are the result of these interactions, thereby gaining an understanding of mechanisms of emergence. Philosophy can fulfill the role of synthesizing simulation-enabled insights 'into an emergent materialist world view that finally does justice to the creative powers of matter and energy' (p. 6).

For DeLanda, science need not neutralize the 'intensive' or differentiating properties of the virtual, much like his mentors Deleuze and Guattari argued. In this sense, he has much to offer constructivist debates since his work

> attempts to provide both an ontological and epistemological alternative to philosophies of science based on axiomatic systems, deductive logic, and essentialist typologies, one that is grounded in *creative experiment* rather than theory, in the *multiplication* of models rather than the formulation of universal laws (Bogard, 2005, emphasis added).

However, unlike his mentors, DeLanda grants a particularly authoritative role to science in enabling a rigorous ontology of the virtual. Such a privileged role for the scientific enterprise is at odds with the work of Stengers (2000), who frames modern science as a political invention, without reducing science to power play or pretending there is a stronghold from which science can be denounced or judged objectively. Rather, Stengers operates under a Leibnizian constraint (Stengers, 2000, p. 15) that demands respectfully addressing established sentiments, all the while attempting to transform matters of fact into matters of concern by providing the means to think through current states of affairs. For Stengers, the advent of the modern sciences is an event replete with underlying tensions that should not be veiled, implying a refusal 'to reduce a situation to what the passing of time gives us power to say about it today' (Stengers, 2002, p. 42, quoted in Mackenzie, 2005, p. 104). It is exactly the more dismissive aspects of DeLanda's book that can appear problematic in this sense.

Eliminativism

In the aforementioned process of bootstrapping, DeLanda wishes to avoid 'the postulation of general entities (ideal types, eternal laws)', since 'for a realist whose goal is to create a mind-independent ontology, the starting point must be those areas of the world that may be thought of as having existed prior to the emergence of humanity on this planet' (DeLanda, 2009, p. 28). Here DeLanda aligns himself with contemporary critiques of 'correlationism'—'the idea according to which we only ever have access to the correlation between thinking and being, and never to either term considered apart from the other' (Meillassoux, 2008, p. 5). By focusing on 'mechanisms of emergence' that produce the subjects studied by various scientific disciplines (such as meteorological phenomena, insect intelligence, and Stone Age economics), science now has the ability to describe '[w]holes the identity of which is determined historically by the processes that initiated and sustain the interactions between their parts' (*Philosophy and Simulation*, p. 3). Concepts that do not elucidate sequences of events that produce emergent effects are considered irrelevant for scientific analyses. Philosophy emerges renewed, banished of reified generalities like 'Life', 'Mind', and 'Deity' (p. 3). Thus, DeLanda's book on simulations furnishes what I propose to call a 'robust realism': it features both a vigorous commitment to exploration, *and* a boisterous dismissal of knowledge that fails to contribute to what DeLanda hails as an ideal of scientific rationality.

A sense of ontological completion takes root in DeLanda's work over the course of his various publications: from a more speculative alternative history produced by a 'robot historian' (DeLanda, 1991), via the erudite exploration of the ability of science to engage intensities (DeLanda, 2002), to his latest work on simulations that exerts a confidence that readers with more constructivist commitments may find troubling. DeLanda's commitment to intensities and the virtual

notwithstanding, he also explicitly claims that knowledge created by means of simulations must abandon 'mystifying entities' (*Philosophy and Simulation*, p. 2). Philosophers are suspected of a 'fear of redundancy', which 'may explain the attachment of philosophers to vague entities as a way of carving out a niche for themselves' (p. 3). DeLanda's claims come across as a roll call:

> the future of multiagent simulations as models of social reality will depend on how social scientists can affect this technology by deploying it creatively and on how they can be affected by it through the possession of the right social ontology (p. 183).

The accessibility of simulations is something DeLanda alludes to in a rather celebratory fashion by simply pointing out that memory is becoming cheaper and more abundant (p. 148).

As an alternative to the expansion of scientific rationality, Stengers proposes a 'cosmopolitics' (Stengers, 2005) that involves a process of 'collective experimentation' (Stengers, 2009). The challenge of cosmopolitics is how to bring about a form of empowerment: to appeal to practitioners (including, but not confined to scientists) in such a manner that they learn to understand their responsibility for and commitment to understanding the world from their own strength, or from what is relevant to them (Bordeleau and van Tuinen, 2011, p. 448). In a recent essay, Stengers (2011) observes that 'happily equating our understanding with an active elimination of everything about "us" that cannot be aligned with a so-called "scientific" conception of matter, is now widely endorsed in the name of scientific rationality' (Stengers, 2011, p. 368). This so-called 'eliminativism' relegates obstacles to its goals to an epistemological waste bin. Thus, struggle may be omitted from situations that involve conflicts, e.g. by refusing to acknowledge the response of Indian peasants to GMOs. Exceptionalism precludes scientific practitioners from wonder and forces the production of knowledge to follow 'settled interests' (Stengers, 2011, p. 377).

By staking a claim to rationality, scientific practices and other practices (Stengers provocatively gives the example of tarot-card reading) are seen as equivalent, leaving room for the elimination of those kinds of knowledge that do not contribute to the production of objective knowledge. Stengers argues assessments of the value of different practices should

> refrain from using general judgmental criteria to legitimate their elimination, and to refrain from dreaming about a clean world with no cause to wonder and alarm . . . I do not claim we should mimic those practices, but maybe we should accept to seeing them and *wonder* (Stengers, 2011, p. 379, emphasis added).

It is exactly a sense of wonder or imagination that is important in simulation practice, as indicated in the studies of simulation practice from a STS perspective

quoted above. Much of DeLanda's work on simulations suggests a similar notion of imagination through exploration in the form of exploration, but is ultimately devoted to formalization in the name of 'purified' science that resolutely distinguishes the objective and the nonsensical. I therefore invite readers of DeLanda's book to ask to what extent it leaves room for imagination. In the light of Stengers' concerns about eliminativism, contemporary notions of scientific relevance, and the perceived appeal of quantitative methods enabled by computational techniques, DeLanda's sweeping claims appear eerily devoid of questions of relevance and socio-political aspects of scientific practice.

References

Bogard, W. (2005) Book Review: How the actual emerges from the virtual, *International Journal of Baudrillard Studies*, 2(1). Available at http://www.ubishops.ca/baudrillardstudies/vol2_1/bogard.htm.

Bordeleau, E. and van Tuinen, S. (2011) Isabelle Stengers, in: B. Ieven, A. van Rooden, M. Schuilenburg and S. van Tuinen (Eds) *De Nieuwe Franse Filosofie*, pp. 440–452 (Amsterdam: Boom).

DeLanda, M. (1991) *War in the Age of Intelligent Machines* (New York: Zone Books).

DeLanda, M. (2002) *Intensive Science and Virtual Philosophy* (London: Continuum).

DeLanda, M. (2009) Ecology and realist ontology, in: B. Herzogenrath (Ed.) *Deleuze/Guattari & Ecology*, pp. 23–41 (London: Palgrave Macmillan).

Deleuze, G. (1994) *Difference and Repetition,* translated by P. Patton (New York: Columbia University Press).

Mackenzie, A. (2005) Is the actual world all that must be explained? The sciences and cultural theory: review essay of Manuel DeLanda, *Intensive Science, Virtual Philosophy* (2002) and Isabelle Stengers, *The Invention of Modern Science* (2000), *Journal for Cultural Research*, 9(1), pp. 101–116.

Meillassoux, Q. (2008) *After Finitude. An Essay on the Necessity of Contingency* (London: Continuum).

Oreskes, N., Schrader-Frechette, K. and Belitz, K. (1994) Verification, validation, and confirmation of numerical models in the Earth sciences, *Science*, 263(5147), pp. 641–646.

Stengers, I. (2000) *The Invention of Modern Science* (Minneapolis, MN: University of Minnesota Press).

Stengers, I. (2005) The cosmopolitical proposal, in: B. Latour and P. Weibel (Eds) *Making Things Public: Atmospheres of Democracy*, pp. 994–1003 (Cambridge, MA: MIT Press).

Stengers, I. (2009) William James: an ethics of thought? *Radical Philosophy*, 157, pp. 9–19.

Stengers, I. (2011) Wondering about materialism, in: L. Bryant, N. Srnicek and G. Harman (Eds) *The Speculative Turn: Continental Materialism and Realism* (Melbourne: re.press).

Winsberg, E. (2010) *Science in the Age of Computer Simulation* (Chicago, IL: Chicago University Press).