

1st COST year's Position Paper: Re-thinking the empirical in g/local onto-epistemologies

In this position paper we argue for the need to re-think the empirical in the light of a new materialism's approach which challenges the (ontological) character of scientific objects and put into question traditional ways of giving them reality or, put differently, of explaining them within conventional settings of empirical research. As Karen Barad has characterized her approach, "scientific practices do not reveal what is already there; rather, what is "disclosed" is the effect of the intra-active engagements of our participation with/in and as part of the world's differential becoming." (Barad 2007, 361)

To start with we describe two cases where it becomes apparent that previous concepts in which empirical research is usually framed, have some shortcomings: the case of nanomaterials and the case of the materiality of Big Data. We continue with outlining new materialism's concepts which have the potential to overcome these shortcomings such as onto-epistemologies, situated knowledge and politics of location. To conclude we discuss the new status of the empirical as it is allowed by new materialism approach.

Setting out the case for nanomaterials

Industrially produced nanomaterials are built in in various consumer products. There is an increasing production and application of nanoscale materials for a wide range of different purposes, e.g. daily consumer products such as paints, foods, medicines and sunscreens etc. Prominently in the last decade a debate has formed around the questions if these nanomaterials are dangerous for health or environment. Among publics and scientific experts there is growing concern about production, use and release of nanoscale particles in industrial plants and everyday life. As a consequence critics caution against potential harms to health and environments. For instance, carbon nanotubes triggered a highly politicized debate because of their analogy to asbestos. Another example are carbon blacks which are discussed as part of the risk debate on fine and ultra-fine particles. In these discourses a wide variety of actors like material scientists, policy makers and lay citizens are involved. They all have their particular stakes and – mostly controversial – arguments how societies and politics should deal with risks of nanomaterials. Crucial for all actors in these discourses are how nanomaterials, nanoscaled structures or nanoparticles are to be defined and classified. In the end, the questions touch public issues like the risk assessment of nanoparticles, the regulation of the production, sales and distribution of nanomaterials of products, e.g. the governance of nanotechnologies. Thus the materiality of nanomaterials is highly politicised. Materiality is tried to be grasped by the actors

in the debate in forms of classifications and definitions of what a nanomaterial is and in which cases matter should be subject to regulation and in which not.

Most concepts of “actors” and “materials” in the risk debate, so to speak the “scientific objects” in this research, recognise the quality of the materiality at stake but do not conceptualise it as a material-semiotic actor itself. The debate is grasped as a discourse *on* materiality, not as a “material-discourse” whose “in-becoming” is to be tackled. This holds for STS-based studies as well as for discourse-analytical accounts based in qualitative research in the social sciences.

Setting out the case for Big Data

Big data are another evocative object for demonstrating the entanglements of materiality and discourse. As IT objects big data materialize knowledge and matter in both senses: as signs materialized in computers and for its political impact. Big data is coded knowledge. As such it partly constitutes us and the world we live in.

Big data, however, reduces knowledge and information to data, which is accessible via computers, smartphones or other devices “just on time and in place”. Knowledge, which is not considered as proper knowledge or which is seen as marginalized (such as feminist entries in Wikipedia that were erased) will neither be coded. Nor can rather complex aspects of the world (e.g. if their codifying needs more than first order logic) be represented in the cloud. Thus, the more we will depend on information accessed through big data, certain knowledges will not seem to exist anymore: What is not in the cloud appears not to be real.

Hence, it is a crucial question, what is included in the (big) data and what is not. Whose knowledge is coded for its use in certain smartphone or computer applications and whose is not? Developments in the field of big data demonstrate that we can hardly distinguish between knowing and being. They call for what Barad denotes as an “ethico-onto-epistemology”. Moreover, these IT objects are not only produced by humans, for instance, by authors or a software engineers. Some of the entries in the cloud are rather created by machines and algorithms. Hence, it is not only humans having the agency to produce knowledge in that sense. When agency is distributed between humans and machines, though, how can we conceive accountability and ethics?

The case of big data makes clear that a social science or humanities analysis is not enough to diffract current knowledge production. In order to shift the human and computational practices in the field of big data towards a more inclusive praxis that is aware of the potentials, boundaries and pitfalls of current knowledge production, we definitely need interdisciplinary work at the intersection of the technosciences and the humanities.

New materialism's concepts which have the potential to overcome these shortcomings

Onto-epistemologies:

Karen Barad finishes her paper entitled “Posthumanist performativity“ by stating that the “onto-epistem-ology – the study of practices of knowing in being” – inverts the separation of epistemology from ontology that is the traditional way of “a metaphysics that assumes an inherent difference between human and nonhuman, subject and object, mind and body, matter and discourse” (Barad, 2003, 829). In such inversion some key issues are important to sustain the approach as the new discussion about the empirical, understood not anymore as an outside matter to be captured. Since in this sense also humans are part of the world's ongoing material reconfiguring and intra-active becoming, empirical research as a human endeavor to understand the world have also to be conceptualised as an intra-action in which matter is more than a fixed and static essence but more a dynamic substance in its process of intra-active becoming. Notions as the laboratory and the empirical apparatus should be considered as part of that sifting substance. The third key issue comes from the agency notion. Again, in the words of Barad, “the primary ontological units are not ‘things’ but phenomena – dynamic topological reconfigurings/entanglements/relationalities/(re)articulations. And the primary semantic units are not ‘words’ but material-discursive practices through which boundaries are constituted. This dynamism is agency. Agency is not an attribute but the ongoing reconfigurings of the world” (ibid., 818). Therefore, this understanding of ‘agency’ means a shift in meaning, i.e. from causal relation to conjoined material-discursive nature of constraints, conditions and practices that makes matter mattering.

Situated knowledges:

Epistemologies of situated knowledges emerge from the critique regarding the dominant discourse of Enlightenment that emphasized the dominance of the human (considered to be male, white and rational) conditions to know as the only and valid way to produce knowledge. As Lang (2011, 78) stresses, “the measure of truth is the potential for transcendence across individual particularities” and all individuals are able to do this. It took centuries until the near end of XX century to discover that there was a nearly total absence of others than men, white and from western culture, considered as the only epistemological subjects. By then, assumption of mainstream epistemology that all knowers are equal and are capable to achieve knowledge on equal terms has been started to be criticized and reformulated.

As B.S.Santos showed (2006, 97) this mainstream produced and legitimized five forms of non-existence, such as: the illiterate, the outlier, the inferior, the local and the unproductive.

Situated knowledge refers to the knowledge that is produced within a context and shows the conditions and processes used to produce it, in contrast to the practice of the God's trick as it has been called by Haraway, that presents empirical results as the final, generalized and universal conclusion.

Situated knowledge refers to a socio-historical and responsible process of knowledge production that assumes its partiality. That means that subjectivities who are responsible assume and position their speaking subject location. This development meant a re-assignment of the former allegedly epistemologically non-existent subjects as being now acknowledged as equally knowing subjects.

Politics of location

Clearly connected to the concept of situated knowledges, politics of location means "the materialist acknowledgement of a historical location: a starting position of asymmetrical power differentials. This location is not only geopolitical, but also genealogical and time-bound" (Tuin & Dolphijn 2010, 158).

Therefore, a politics of location must be seen as an epistemological and methodological requisite for a non-traditional way of producing science that "emphasizes the specificity of the speaking subject in order to foreground her capacity to speak, and also to account for the way that all knowledge claims remain situated and contingent" (Hinton 2014, 100).

The politics of location is also related with the embodiment of experience, "by insisting on the primary locus of the body as the site from which one's partial perspective can be enunciated" (ibid, 101). This requires and also allows that subjects speak about their own experiences on their own terms. Nevertheless, as stated by Mendes (2010, 447), politics of location could be used as an argument against exclusion practices as experienced by "voiceless people, unnamable networks and disposable groups".

To not conclude – rethinking the empirical

Rethinking the empirical means the enlargement of the scope of research, in order to include discourse, matter and bodies in the same dynamics of mattering. Therefore, empirical research should focus in the intra-active becoming of matter, this is to be produced within a context and showing the conditions and processes which has been used to produce it.

The empirical is not anymore the passive and fixed matter upon which the subject produce representations of the world or of nature, nor a set of independent data (Schadler 2014) to be categorized under a given structure and generalized. If there are no such things as previous entities to the enactment, becoming is a rather complex and intradynamic process that is to be

understood. These approaches hold that objects (and subjects) are not pre-existing entities, but always constituted and afforded localized “essences” in particular practices and interactions, in which they are “doing” one another (Søndergaard, 2002). Therefore, a methodological approach for a new materialism demands concerns, entanglements and techniques that could give place to intra-active enactments. As Schadler puts it, it is “to describe this becoming-with, by identifying the participants and their co-participants and reconstructing boundary-making processes and other salient practices” (Schadler 2014, 118).

As cases presented highlighted, the empirical, i.e. the nano-particles in the first case as the data in the second case, can neither be grasped as a passive matter nor can it be seen as political independent. In the case of nanomaterials it is the materiality that makes a nanoparticle a political agent in the risk discourse of nanotechnologies and which could not be conceptualised within a traditional epistemological framework of human subjects as knowers and passive particles as objects to be represented by scientific theories. In the case of (big) data it is the agency, distributed between humans and machines, of data that makes us drawing our attention beyond alleged distinct boundaries between the human and the non-human and grounding our understanding of knowledge producing practices in onto-epistemologies, situated knowledges and politics of locations.

From the above arguments it is possible to conclude for the need of re-think the empirical as well the technics to produce research.

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