

Abstract

At the turn of the millennium, the most developed countries began to take interest in nanotechnology, that is, technologies defined by their precise nanometer-level functionality, but also by their substantial, realised, or anticipated changes in industry and medicine. At the European policy level, nanotechnology has become part of the pan-national governance principle, accompanied however by low public awareness of the benefits and risks. Nanotechnology engenders gradual, albeit very controversial transformations where actors adopt various communication strategies.

The dissertation presents an analysis of the relationship between metaphor and nanotechnology. Neither metaphor nor nanotechnology is a neutral resource to be freely exploited, but both have significant implications for the strategic efforts of actors who use them. The study has the objective of exploring the social representations of nanotechnology in the various local (cultural) contexts of their medialisation and investigating the isomorphism which exists between metaphorical structures and the evolution of nanotechnology controversies.

The theoretical part considers the role of metaphors in constructing social representations of nanotechnology and in translating between *there and then* and *here and now*. These representations and transformations depend on multiple contexts—social, political, cultural, and epistemic—where both actors (agents) and structures must to be taken into consideration to give an account of particular events and trajectories of mattering. Metaphors affect, in particular, imaginaries of the nanoscale and future expectations of benefits and risks, and they also provide a semantic link to narrative elements and storytelling. They have proved to be both supportive and restrictive to the development of nanotechnology.

The data used in this study ranges between the years 1999 and 2015, using approx. two thousand articles from Web of Science, the European Commission (CORDIS), and Czech, French, and British national (print) media. By integrating two analytical approaches, metaphor-in-discourse (Charteris-Black 2004, Semino 2008) and the ‘actantial’ model of narrative (Greimas 1987, Cooren 2001), the analysis focuses on matters of concern and related metaphorical patterns and structures. Accordingly, the study is followed by a critical approach to the implications of metaphor use and related transformations linked to the dynamic of discourse and nanotechnology development.

My contribution falls into four areas. (1) In the study of the Web of Science corpus, I show how scientific laws extend to society through numerous translations of *creative evolution* (Moore’s

law being an example). It is argued that Moore's law is a metaphor which yields tremendous imaginaries of the nanoworld and implies a sociotechnical convergence. As such, creative evolution is also restrictive of certain development options. (2) The analysis of the science policy (CORDIS) corpus demonstrates that metaphors of locations, events (past and future), and actors are representations of power on the cultural-cognitive level (a discourse formation which I term *nano-Orientalism*). Addressing how policymakers embrace metaphors and related narratives as true representations of reality reveals how they initiate actions in terms of qualifying roles, collaboration models, mobilisation of resources, grant eligibility conditions, and so on. (3) The dissertation assembles unique profiles of nanotechnology controversies from the Czech, French, and UK mass media, which make it possible to see how metaphors intervene differently into various *dispositives of nanotechnology acceptance*. (4) The case studies reveal that metaphors have three capacities: activating, generative, and organisational. These are based on metaphorical concepts linked to narrative structures and discursive formations. In conclusion, the relationship between metaphor and nanotechnology is made of paradox. Metaphors create *protected spaces* for technology development, but they also represent a genuine resource to be exploited by inserting *ambiguity as objectivity* in reporting. This major media strategy creates conditions which ensure the multiplicity of socially available narratives and interpretations. The metaphor capacities and biases, sociotechnical convergence, and the plurality of ontological regimes are fundamental challenges for the assessment of nanotechnology.