KULTURWISSENSCHAFTLICHES INSTITUT ESSEN
INSTITUTE FOR ADVANCED STUDY IN THE HUMANITIES

GOETHE-INSTITUT

Symposium
The Struggle for Meaning - Nature & Culture in Techno- & Life Sciences

Friday, December 10th 2010
Kulturwissenschaftliches Institut Essen (KWI), Goethestr. 31, 45128 Essen

The Symposium is supported by the Institute for Advanced Study in the Humanities (KWI) (www.kwi-nrw.de) in cooperation with the Goethe Insitute (www.goethe.de) in the context of the residency program Scholars in Residence.

Organisation: Diego Compagna, Scholar in Residence, Institut für Soziologie, Universität Duisburg-Essen (diego.compagna@uni-due.de)

Abstract

Within Science and Technology Studies (STS) the shifting meaning of concepts like 'nature' and 'culture' is a crucial topic. The concepts of nature and culture are in multiple ways at stake: On the one hand due to reconfiguration processes of their 'boarders' through techno- and life sciences' developments and insights as well as the co-constructing dynamics between social and scientific activities. On the other hand, the interlinked meanings of nature and culture appear more or less as critical demarcations of the techno- and life sciences research activities. The wide diagnosis range of the shift of these interlinked concepts goes from the notion of 'collapsing back upon itself' to a 'simple sliding' that provides a redefinition or that provokes a reconfiguration (mostly with an emphasis on power and inequality related bargaining processes).

The aim of the symposium is to discuss current positions in Philosophy, Sociology and STS, centered on the topics of Nanotechnology and Genetics (including Genomic and Epigenetic):

- How are the concepts of nature and culture in techno- and life sciences interlinked?
- How could the dynamics of co-construction be captured and described?
- What is the role of power and inequality in redefinition / reconfiguration processes?
- Which problems for humanities / social sciences / STS occur from this shift and how could they be identified?

After a keynote about the general topic of the symposium six distinct contributions should lighten up this specific field from interdisciplinary perspectives. After each talk a brief discussion among the referees and the audience will take place to enable an enriching interdisciplinary exchange in this area of expertise.

Chair

Prof. Dr. Ingo Schulz-Schaeffer - Institut für Soziologie, Uni Duisburg-Essen, Deutschland

Agenda

10:00 - 11:00
Prof. Dr. Jutta Weber - Braunschweiger Zentrum für Gender Studies, TU Braunschweig, Deutschland
Keynote: Technoscience, Control Society and the Politics of Life Itself

11:00 - 11:45
Dr. Eduardo A. Rueda - Institute of Bioethics, Universidad Javeriana, Bogotá, Colombia (Scholar in Residence)
Governing Cultural Monsters: The Clinical Genetics Setting

11:45 - 12:30
Dr. Martin G. Weiß - Institut für Philosophie, Uni Klagenfurt, Österreich
What We Cannot Build, We Cannot Understand - Philosophical Remarks on Synthetic Biology

12:30 - 14:00
Lunch Break

14:00 - 14:45
Dr. Ute Kalender - Södertörn University College, Stockholm, Sweden / Institute for Advanced Studies on Science, Technology and Society (IAS-STS), Graz, Österreich
Beyond Gene-Determinism? Epigenetic Concepts of Environment

14:45 - 15:30
Dr. Andrea zur Nieden - Institut für Geschichte der Medizin, Uni Düsseldorf, Deutschland
The Moral Authority of 'Nature' in Opposition to 'Artificiality' in Enlightenment Medicine

15:30 - 16:00
Coffee Break

16:00 - 16:45
Diego Compagna - Institut für Soziologie, Uni Duisburg-Essen, Deutschland (Scholar in Residence)
Humans, Subjects, Actors, Actants, Cyborgs and Avatars - New Agency/ies in New Socio-technical Environments?

16:45 - 17:30
Claudia Schwarz / Simone Schumann - Institut für Wissenschaftsforschung, Uni Wien, Österreich
The Co-Production of Nature, (Technopolitical) Culture and Technology in Citizens' Discussions of Nanotechnology

17:30 - 18:00
Prof. Dr. Ingo Schulz-Schaeffer - Institut für Soziologie, Uni Duisburg-Essen, Deutschland
Summarizing explanatory notes and final discussion

Abstracts:

Diego Compagna (Institut für Soziologie, Universität Duisburg-Essen)
Humans, Subjects, Actors, Actants, Cyborgs and Avatars - New Agency/ies in New Sociotechnical Environments?

The (cultural) understanding of individuality is shaken by Techno- and Life Science activities. The baseline of my paper is to ask if the Techno- and Life Science activities create the necessity for a clear distinction regarding the relation between 'human entities' as specific actors and actions in general.

Several approaches have been made to handle changed societal contexts regarding the already increasing difficulties to attribute agency to classical actor models. Despite these suggestions, astonishingly few sociological studies include new actor models and most of the sociological technology theories are facing the problem by reframing the action model. However, it seems that from a sociological point of view, only matters of agency are at stake. A zero value analysis of social theories reveals a somehow naturalized subjectivity core, which could be read at the same time as the reification of a category arising from the Enlightenment era. The subject as an empty significant could be discussed either theoretically or politically: Theoretically, it assumes the function of a contingency formula; politically, it assures the addressability to (living) entities with clear and distinct boarders. The subversive force of fragmented acting entities (e.g. cyborgs or networks) is constantly undermined by reification processes that could also be identified as effects of the discursive exploration of the situation (again: theoretically as well as empirically). Some examples should show how the struggle for meaning creates meaning where there was no meaning before. Through the media and in everyday life activities/orientations, the subject as a category is naturalized like it was never before, and, at the same time, it becomes increasingly ambiguous. Digital media, such as digital games, on the other hand, should provide a most suitable case example for a widely diffused experience of fragmentation.

Dr. Ute Kalender (Södertörn University College, Stockholm / Institute for Advanced Studies on Science, Technology and Society (IAS-STS), Graz)
Beyond Gene-Determinism? Epigenetic Concepts of Environment

Epigenetic approaches more and more enter various fields of biomedicine and biomedical research. Epigeneticists deal with cell processes beyond the genes – the environment of genes. On first sight epigenetics does not just consider environmental influences, it also seems to be the opposite to gene determinism.

My paper, however, wants to shed a closer look on epigenetics and argues that the epigenetic concept of environment is a very specific, even highly problematic, one: Because epigenetics assumes that the ’environment’ – namely behaviour and lifestyle – coins genes, imperatives of genetic responsibility are intensified.

The central claim of the paper thus is that in current epigenetic research this attention to environmental influences has been diverted into an even more sophisticated version of epigenomic susceptibilty: Epigenetics creates a holistic version of epigenetic risks and responsibilities.

Dr. Andrea zur Nieden (Institut für Geschichte der Medizin, Universität Düsseldorf)
The Moral Authority of 'Nature' in Opposition to 'Artificiality' in Enlightenment Medicine

When examining the contemporary shifting meanings of concepts of 'nature' and 'culture', it is worthwhile to take a look at the history of the nature/culture divide in the life sciences. It was in some trends of enligthenment thinking that 'nature' became morally loaded as better than 'artificiality' or 'factitiousness'. Already before the romantic and anti-civilisational call

'back to nature' inspired by Jean Jaques Rousseau, the bourgeoisie powerfully legitimised its social and political values, but also its expanding empirical sciences, as 'natural' in contrast to the supposed 'factitiousness' of the aristocracy and their life-style. In this sense of the term, nature was not opposed to, but in accordance with reason. During my talk, this line of argumentation and its nuances and varieties shall be further explored in 18th century popular writings covering natural sciences and medicine, such as the periodicals 'Moralische Wochenschriften' or medical handbooks aimed at a broader public. Especially in German enligthenment literature, the call for a 'natural, reasonable and non-artificial' way of life (e.g.: „Meine Lebensordnung soll ganz natürlich, vernünftig und ungekünstelt seyn“) is justified by God's will. In the tradition of physico-theology, the world and also the human body was seen as a 'masterpiece created by God', in its harmonic perfection even a proof for the existence of a 'wise creator', and therefore not to be messed up by human intervention. But this did not mean to totally withdraw from culture or to go back to a genuine primitiveness. Instead, the relationship between nature and culture often seems to be a co-operative one, in which culture and science shall support the inner telos of nature. In this sense, although nature is constructed as 'better' than synthetical creations, boundaries also blur, as the empirical exploration and technical assistance of nature are enforced.

Dr. Eduardo A. Rueda (Institute of Bioethics, Universidad Javeriana, Bogotá)

Governing Cultural Monsters: The Clinical Genetics Setting

Before the uncertainties with regard to the consequences of activating a specific biotechnology, institutions at charge implement strategies to frame these uncertainties in a way that make them manageable (Wynne, 2001). This taming process is focused either to exorcise uncertainties or to adapt them to institutional habits (Smits, 2004). According to Smits, when institutions have to deal with a phenomenon that fits into two cognitive exclusive categories (i.e., knowledge vs. ignorance or facts vs. values), they cope with it using defensive strategies. Such a phenomenon is described by Smits (following M. Douglas) as a cultural monster because it causes both cognitive discomfort and fascination. As long as uncertainty fits into the categories of knowledge and ignorance, it constitutes a cultural monster that threatens “a symbolical order in which science is seen as the producer of authoritative objective knowledge” (Van der Slijs, 2006). In order to govern this monster, institutions mobilize their symbolical forces in a strategic way: whereas exorcising strategies want to expel uncertainty, adapting strategies attempt to fit the uncertainty monster back into the categories. In the field of clinical genetics these exorcising and adapting strategies consist in framing the uncertainties as medical risk, treating genes as exceptional informational entities, and purifying the models of measuring “genetic risk”.

Claudia Schwarz & Simone Schumann (Institut für Wissenschaftsforschung, Universität Wien)

The Co-Production of Nature, (Technopolitical) Culture and Technology in Citizens' Discussions of Nanotechnology

In current STS work, most strongly under the label of ‘co-production’, science and society are regarded as being closely intertwined and characterized by a dynamic, interactive relationship. Such a co-productionist view considers the understandings and representations of nature, culture and technology as inseparable from ways of living in the social world as well as from decision-making on future technoscientific developments. Spaces for co-producing technoscience and society are particularly opened up via emerging technoscientific fields such as nanotechnology. Nanotechnology is an interesting case because its emergence is accompanied by huge expectations but also by concerns due to its potential to blur long-standing boundaries of nature and technology.

With nanotechnology we have also witnessed increasing attempts to make the governance of new technoscience more inclusive through public participation and engagement. In many countries initiatives have been launched to make citizens express their visions, fears and hopes about the future of nanotechnologies. In a larger project on nano and society at the

Institute of Social Studies of Science at the University of Vienna, we organised four such participatory workshops with members of the lay public, dealing respectively with nanomedicine, nanofood, nano in ICTs/surveillance and nano in consumer products.

In this talk, we focus on the collective co-production of meaning, knowledge and positions in these discussion groups. We employ the term co-production here to capture both the ways in which lay citizens co-construct shared knowledge and positions about nanotechnology in this interactive social setting and the ways in which the future of nanotechnologies and social (re)arrangements are simultaneously shaped. We will particularly investigate the in situ developed lay understandings of the concepts of nature, culture and technology and their entanglement. The data shows that “nature” is used in a variety of ways in order to negotiate how nanotechnologies could or should be integrated into a specific technopolitical culture. Accordingly we will explore how “nature” is employed as a discursive resource when discussing anticipated controversial reconfigurations of “human nature” through nanomedicine as well as the diverse conceptions of nature-technology arrangements that are co-produced when citizens assess nanofood.

Prof. Dr. Jutta Weber (Braunschweiger Centre for Gender Studies)
Technoscience, Control Society and The Politics of Life Itself

Today, there is a lively debate going on whether the relation of nature and culture as well as science, technology and society was profoundly transformed in the last decades. Some people argue that we live in an age of technoscience in which the epistemologies, ontologies, categories and epistemic values of (techno)sciences radically changed (Haraway, Latour).

From my perspective, technosciences such as New Robotics or Noveau Intelligence invented powerful analogies between humans and machines and reformulated the traditional epistemologies and ontologies of GOFAI (Good Old Artificial Intelligence). Their new approach is centered on the determination of optimal boundary conditions to bring emergent processes into being, while ignoring the intrinsic properties of organisms and refraining from the objective description of universal laws. Evolution via tinkering, the processes of trial and error are the main tools to help the construction of complex dynamic and therefore intelligent systems, which are beyond the analysis and control of the classical sciences. The logic of research centers on the emergence of the unexpected and to find possibilities to exploit surplus processes in a technical way.

At the same time, the project of Enlightenment and traditional narratives of progress are left behind. Technology is seen as the main factor in an entrepreneurial enterprise for developing innovative solutions for economic growth and specific societal problems (Nordmann).

Having these developments in mind, I would like to focus in my contribution on new societal and biopolitical developments discussed under the heading of 'control society' (Deleuze), 'New World Order Inc.' (Haraway) and the 'Politics of Life Itself (Franklin, Rose) and whether and how shifts in values, historical narratives, epistemologies, ontologies, and technologies can be seen as part of a new episteme called technoscience.

Dr. Martin G. Weiß (Institut für Philosophie, Universität Klagenfurt)
What We Cannot Build, We Cannot Understand - Philosophical Remarks on Synthetic Biology

„We report the design, synthesis and assembly of the 1.08-Mbp Mycoplasma mycoides JCVI-syn1.0 genome starting from digitized genome sequence information and its transplantation into a Mycoplasma capricolum recipient cell to create new Mycoplasma mycoides cells that are controlled only by the synthetic chromosome. The only DNA in the cells is the designed synthetic DNA sequence, including 'watermark' sequences and other designed gene deletions and polymorphisms, and mutations acquired during the building process. The new cells have expected phenotypic properties and are capable of continuous self-

replication."[1] With this sober summary begins Craig Venters famous Science-Article in which he announces the first synthetization of a complete genome on the basis of computer-generated information. The media-response was enormous. The Economist titled „And man made life. Artificial life, the stuff of dreams and nightmares, has arrived"[2], the headline of the german newspaper Die Zeit posed the question „What is life?" and stated: „Scientists have created the first artificial organism. Now man is able to play God". Asked by a journalist about the meaning of this experiment, Venter hesitate for a moment, but then answered: „Perhaps it is a giant philosophical change in how we view life."[3]

In which direction this new understanding of life may go, is inscribed in the new organism itself, as Venter and his colleagues have provided their synthetic life-form with "watermarks" in its non-coding DNA, consisting of three quotations: „To live, to err, to fall, to triumph, and to recreate life out of life" (James Joyce), „See things not as they are, but as they might be" (Robert Oppenheimer) and finally „What I cannot build, I cannot understand" Richard Feynman).[4]

Especially the last "watermark" encoded in the very nature of the first synthetic organism is illuminating as at first glance it seems to reveal a dramatic paradigm shift in contemporary Biology, which from description appears to move on to construction.[5] At a second glance however it becomes evident that the epistemological paradigm of construction is as old as modern science itself. In fact not Feynman but Thomas Hobbes was the first to equate knowledge with construction when he stated: „Ubi ergo generatio nulla […] ibi nulla philosophia intelligitur."[6] But where does this idea come from? Why should we be able to understand only what we can build? And why is this concept so appealing up to our days? The author which most clearly tried to answer this question is Martin Heidegger, who back in 1927 tried to show, that the epistemological paradigm of construction is not only not new, but the very basis of western ontology starting at least with Aristotle. Following Heidegger's argumentation Synthetic Biology looses truly its novelty, but reveals the essence of the modern understanding of Being.[7]

---

1 Venter, J. Craig et all.: Creation of a Bacterial Cell Controlled by a Chemically Synthesized Genome, Science, 20.05.2010 (www.sciencemag.org/cgi/content/abstract/science.1190719).

2 The Economist, 20.05.2010 (www.economist.com/node/16163154).

3 http://www.ted.com/talks/craig_venter_unveils_synthetic_life.html.

4 Angier, Natalie: Peering Over the Fortress That Is the Mighty Cell, New York Times, 31.05.2010 (http://www.nytimes.com/2010/06/01/science/01angi.html). Vgl. auch Dillow, Clai: Venter Institute's Synthetic Cell Genome Contains Hidden Messages, Popular Science , 25.05.2010. (http://www.popsci.com/science/article/2010-05/venter-institutes-synthetic-cell-genome-contains-hidden-messages-watermarks#).

5 Rheinberger, Hans-Jörg/Müller-Wille, Staffan: Technische Reproduzierbarkeit organischer Natur, in: Weiß, Martin G.: Bios und Zoë, Frankfurt/M., Suhrkamp 2009, 11-34, 14.

6 Hobbes, Thomas: De corpore. P.I., I, 8.

7 Heidegger, Martin: Grundprobleme der Phänomenologie, GA 24, Frankfurt/M. Klostermann1989, 152f.