University of Twente, The Netherlands

July 7-10, 2009

SPT 2009

Converging Technologies, Changing Societies

Organizing Committee:

Philip Brey, Tsjalling Swierstra, Peter-Paul Verbeek, Katinka Waelbers

Keynote Speakers:

Diane Michelfelder, Nick Bostrom, Jean-Pierre Dupuy, Andrew Feenberg

CONTENT

Organizing and Scientific Committee

Organizing Committee

General Director:	Philip Brey, University of Twente
Scientific Directors:	Tsjalling Swierstra, University of Twente
	Peter-Paul Verbeek, University of Twente
Managing Director:	Katinka Waelbers, University of Twente
	(contact: +31-6-18110704, SPT2009@gw.utwente.nl)

Scientific Committee

Mieke Boon
University of Twente
M.Boon@gw.utwente.nl

Nick Bostrom
Future of Humanity Institute
Oxford University
fhi@philosophy.ox.ac.uk

Philip Brey
University of Twente
p.a.e.brey@utwente.nl

Adam Briggle
University of Twente
a.r.briggle@gw.utwente.nl

Frans Brom
Rathenau Instituut
F.Brom@rathenau.nl

Mark Coeckelbergh
University of Twente
m.coeckelbergh@utwente.nl

Charles Ess
Drury University Springfield
cmess@drury.edu%22

Darryl Farber
Penn State University
dlf112@psu.edu

Joachim Schummer
Universität Karlsruhe
js@hyle.org

Robert Frodeman
University of North Texas
frodeman@unt.edu

Bert Gordijn
Dublin City University
bert.gordijn@dcu.ie

Armin Grunwald
Helmholtz Association
grunwald@itas.fzk.de

Sven Ove Hansson
Royal Institute of Technology
soh@kth.se

Andrew Light
Center for American Progress
alight@americanprogress.org

Anthonie Meijers
Eindhoven University of Technology
a.w.m.meijers@tue.nl

Carl Mitcham
Colorado School of Mines
cmitcham@mines.edu

Sabina Roeser
Delft University of Technology
S.Roeser@tudelft.nl

Peter-Paul Verbeek
University of Twente
p.p.c.c.verbeek@utwente.nl

Evan Selinger
Rochester Institute of Technology
evan.selinger@rit.edu

Tjsalling Swierstra
University of Twente
t.e.swierstra@utwente.nl

Herman Tavani
Rivier College
htavani@rivier.edu

Pieter Vermaas
Delft University of Technology
p.e.vermaas@tudelft.nl

Gianmarco Veruggio
School of Robotics
gianmarco@veruggio.it

Katinka Waelbers
University of Twente
k.waelbers@utwente.nl

Through his philosophy of symbolic forms, and especially, through his understanding of technology, Cassirer offers an approach that radically expands and transforms the concept of logos as traditionally understood. According to Cassirer, logos has not only a 'theoretical' significance but an 'instrumental' significance as well. Thus, the power of logos resides in the tool. Technologies not only expand human power and reach but open new world aspects. Moreover, through his doctrine of symbolic forms, Cassirer shows that thinking is not opposed to intuition. Rather, the two factors are combined in that thinking is conceived of as technologically and symbolically distributed imagination. Scientific 'objectivation' (the activity of rendering eterminable and communicable) thus requires human intervention, the introduction of a "terminus medius"[3] in the form of a constructive or dynamic principle that opens up a particular sphere of possible determinations and comparisons. Cassirer's positive account of the generative and revealing powers of symbols and instruments redraws the borders between the real and ideal, and in this way it may prove helpful when it comes to understanding the cognitive status of computational visualisations, including simulations.

Bachelard (to be presented by Annamaria Carusi)

The interest of Bachelard for our topic resides in his notion of phénoménotechnique[4] as well as in his work on rationality and imagination. With respect to the first, Bachelard critiques Husserl's dichotomy between mind and data, and proposes instead that scientific entities are never data or givens, but emerge from technical manipulations in interaction with rational and practical judgements. Bachelard takes into account the role of technologies in scientific experimentation, viewing the technologies as reified theories, which, since modern physics, most often take the form of mathematical models. But, he also points out the inter-relationship between the mathematisation of technology, and practical goals and purposes on the one hand and the aesthetic form through which the scientific phenomenon can be perceived on the other. There emerges from this a complex account of the different levels of intentionality involved in scientific perception.

Thus through the lens of Cassirer's work, we obtain a different perspective on the relationship between thinking and imagination, and through the lens of Bachelard's work we see different details of the relationship between scientific practice – technical, rational, social, and aesthetic – and the entities it creates for itself. By bringing these two philosophers to the fore we hope to show how they can enrich current phenomenological thinking on science and its images.

References

1 Agustin A. Araya, "The Hidden Side of Visualization", Techné, 7:2, Winter 2003.
2 Peter Paul Verbeek, "Cyborg Intentionality: Rethinking the phenomenology of human-technology relations", in Phenomenology and Cognitive Science, 2008, 7, p. 393.
3 Ernst Cassirer, "Form und Technik", in: Symbol, Technik, Sprache: Aufsätze aus den Jahren 1927-1933 (Hamburg: Felix Meiner), 1985, p. 61.
4 Bachelard, Gaston, ([1934] 1978), Le Nouvel esprit scientifique. Paris: Alcan.

Enhancement of What? A Capabilities Approach to Ethics of Human Enhancement

Coeckelbergh, Mark

A major issue (or obstacle) in normative philosophical reflection on human enhancement is lack of clarity about what should be enhanced and what counts as enhancement. Both opponents and defenders of human enhancement need to define *what* should be preserved or transcended. Even those defending a very broad definition of

enhancement (e.g. Harris 2007) need to conceptualize the object of change – if this is not possible, then the term is empty. What does 'human' in the term 'human enhancement'? In other words, an ethics of human enhancement needs an anthropology. Moreover, even if we agree on what the object of enhancement is, we still need to discuss what enhancement of that object consists in.

First, I argue that in addition to more general requirements such as coherence and consistency, an anthropology needs to meet the methodological criterion of pluralism. Most anthropologies are monist: they try to capture what it is to be human by using one concept. This is true for many essentialist definitions of the human, but existentialist, culturalist, or naturalist definitions are usually no less monist. I argue that instead we need a pluralist approach that acknowledges the value of different perspectives on the human.

Then I propose to apply a capabilities approach to human enhancement that, in my interpretation, meets the proposed methodological criterion and allows for a more precise discussion of what should or should not be enhanced. Although at first sight the stress on human dignity and the Aristotelian roots of Nussbaum's capabilities approach (Nussbaum 2006) seem to support objections to enhancement only, I argue that if we interpret Nussbaum's capabilities list as an articulation of some important aspects we usually attach to the term 'human', it also can provide guidance to those who are more sympathetic to human enhancement. I show that technology can play a role in the maintenance, restoration, and enhancement of capabilities.

By proposing this two-fold methodological shift, I hope to provide a theoretical common ground for a more detailed discussion of (1) whether or not we want to enhance the human at all, (2) if we want to, which aspects of the human we consider open for enhancement, and (3) what enhancement of these aspects consists in.

Defending Human Enhancement Technologies: What Are We Missing?

de Melo-Martín, Inmaculada

Recent advances in biotechnologies have lead to speculations about the enhancement of human beings. As is often the case with new technologies, they have advocates and detractors. Hence, proponents have argued that attempts to enhance humans will allow us to live longer and healthier, enhance our emotional and intellectual capacities, and generally achieve a greater degree of control over our own lives (1-5). Critics, on the other hand, have pointed out that the use of these technologies is likely to increase unjust inequalities, that they present serious health risks, that parents may become overbearing, or that expenditures for these types of technologies would come at the cost of basic health care provisions or other social programs (6-9).

Significantly, many of the moral arguments presented to defend or reject the use of human enhancement technologies have been limited to discussions of the risks and benefits of their implementation. Though both critics and proponents of these technologies often argue in these terms, I will focus my discussion on the proponents, as this limitation is more conspicuous in their case. The purpose of this paper is to argue that ethical arguments that focus on the risks and benefits of the use of human enhancement technologies are insufficient to provide a robust defense (or criticism) of such technologies. This is so for at least two reasons. First, the belief that an assessment of risk and benefits can offer an adequate ethical evaluation of these technologies presupposes a problematic conception of science and technology as value-neutral. If scientific and technological advances are value-neutral, then ethical and social issues related to such advances are limited to the assessment of the implementation of scientific knowledge or technological practices. The assumption is that science and technology, and the ethical and social issues that they raise are two separate and distinct spheres. Technoscientists produce knowledge while humanists and social