

# PhD Kolloquium





# PhD Theory on Technology

## Kolloquium Spring 2012

### Computation, and the question of the applicability of arithmetics

Computation is treated today as an art, just as Mechanics had been in the Renaissance and the Baroque periods. This basically means that its actual performance is widely recognized and welcome, striking in effect, unexpected, fascinating and also convincing-by-fact, while at the same time the actual methods and procedures are applied rather like recipes. Over time, this gives rise to: 1) a lot of the same, boredom. And 2) to vast disputes around ancient questions on the rôle of technics in the nature of reasoning, intelligence, science.

We want to gain a better insight about the modern theoretical context of these involved topoi, and will start with reading Michael Potter's introductory book to the main stances *Reason's Nearest Kin – Philosophies of Arithmetics from Kant to Carnap*, Oxford University Press 2002.

Meetings are held on Wednesdays, 11 am (Swiss Time) via skype, between the CAAD Chair in Zürich and the NUS / ETHZ Future Cities Laboratory in Singapore.

### Compulsory reading

Michael Potter, *Reason's Nearest Kin – Philosophies of Arithmetics from Kant to Carnap*, Oxford University Press 2002.

**Wednesday February 22 2012**  
**Chapter 0 – Introduction (Vera Bühlmann)**

**Wednesday February 29 2012**  
**Chapter 1 – Kant (An Mihye)**

**Wednesday March 7 2012**  
**Chapter 2 – Grundlagen (Nikola Marincic)**

**Wednesday March 14 2012**  
**Chapter 3 – Dedekind (Knut Brunier)**

**Wednesday April 4 2012**  
**Chapter 4 – Frege's Account of Classes (Jorge Orozco)**

**Wednesday April 11 2012**  
**Chapter 5 – Russell's Account of Classes (Mathias Bernhard)**

**Wednesday April 18 2012**  
**Chapter 6 – The Tractatus (Nikola Marincic)**

**Wednesday May 2 2012**  
**Chapter 7 – The Second Edition of Principia (Knut Brunier)**

**Wednesday May 9 2012**  
**RECAP chapters 1–7 (Vera Bühlmann)**

**Wednesday May 16 2012**  
**Chapter 8 – Ramsey (Jorge Orozco)**

**Tuesday May 22 2012**  
**Chapter 9 – Hilbert's Programme (Matthias Standfest)**

**Tuesday May 29 2012**  
**Chapter 10 – Gödel (An Mihye)**

**Tuesday June 5 2012**  
**Chapter 11 – Carnap (Mathias Bernhard)**

**Tuesday June 12 2012**  
**Chapter 12 – Conclusion (Vera Bühlmann)**

### Elective reading suggestions

on Dedekind's notion of numerical ideality and the rôle of abstraction therein

Richard Dedekind, *Essays on the Theory of Numbers*, transl. by Wooster Woodruff Beman, Project Gutenberg, released 2007.

Erich H. Reck, "Dedekind's Contributions to the Foundations of Mathematics", *The Stanford Encyclopedia of Philosophy* (Fall 2011 Edition), edited by Edward N. Zalta.

Erich H. Reck, "Dedekind, Structural Reasoning, and Mathematical Understanding" in: *New Perspectives on Mathematical Practices*, B. van Kerkhove, ed., Singapore: WSPC Press, 2009, pp. 150-173.

W.W. Tait, "Frege versus Cantor and Dedekind: On the Concept of Number" in *Frege: Importance and Legacy*, M. Schirn, ed., de Gruyter: Berlin, pp. 70–113.

Sephorah Mangin, "Dedekind Abstraction and the 'Free Creation' of the Natural Numbers", online: [http://www.sephorahmangin.info/selected\\_essays/Dedekind\\_Abstraction.pdf](http://www.sephorahmangin.info/selected_essays/Dedekind_Abstraction.pdf)

Vera Bühlmann, "Continuing the Dedekind Legacy today: Some ideas concerning architectonic computation" paper delivered at Turing 2012: International Conference on Philosophy, Artificial Intelligence and Cognitive Science at the De la Salle University in Manila, Philippines, March 27-28 2012.