

Type Theory

A Constructive Foundation for Logics and Computer Science

Andreas Abel

Department of Computer Science and Engineering
Chalmers and Gothenburg University

ESSLLI 2016

28th European Summer School in Logic, Language, and Information
unibz, Bozen/Bolzano, Italy
15-19 August 2016

Short CV

- 1994– Studying Computer Science at Ludwig-Maximilians-University Munich (LMU)
- 1999 Diploma (supervisor: Thorsten Altenkirch)
- 1999– Doctoral studies at LMU
- 2000-01 Research stay at Carnegie-Mellon-University, Pittsburgh (advisor: Frank Pfenning)
- 2004-05 Postdoc at Chalmers, Gothenburg (Coquand, Dybjer, Hughes, Sheeran)
- 2005-13 Assistant to Martin Hofmann at LMU
- 2006 PhD (Dr. rer. nat.) from LMU (supervisor: Martin Hofmann)
- 2009-10 Research stay at INRIA/PPS, Paris, France (Curien, Herbelin)
- 2013 Habilitation at LMU
- 2013– Senior Lecturer at Gothenburg University

Overview (tentative)

- Natural Deduction and the Curry-Howard Isomorphism
- Dependent Types
- Dependently-Typed Coding in Agda
- Metatheory of Dependent Types
- Coinduction

Strongly related ESSLLI courses

- 2015: Phil Wadler
Propositions as Types
- 2016: Daisuke Bekki and Koji Mineshima (LALO, C2.06, 14.00-15.30)
An Introduction to Dependent Type Semantics

Installing Agda

- Short instructions on course page
http://esslli2016.unibz.it/?page_id=173
- More infos on the Agda Wiki
- Very incomplete reference manual on <http://agda.readthedocs.io>