Invited Talk

Towards a Type Theory of Contexts

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Abstract

At the 2003 Merlin workshop, we presented an initial report on providing a logical basis for the understanding of meta-variables. Our calculus rests on a contextual modality that is intrinsically connected to explicit substitutions, but does not provide a means for quantifying over substitutions or abstracting over contexts. In this talk we give a progress report on our attempts to obtain a modal type theory that integrates variables ranging over substitutions and contexts without losing its logical interpretation. This is joint work with Brigitte Pientka (McGill University, Canada) and Aleksandar Nanevski (Harvard University, USA).

Bio

Frank Pfenning studied Mathematics and Computer Science at the Technical University Darmstadt and then left for Carnegie Mellon University on a Fulbright scholarship where he obtained his Ph.D. in Mathematics in 1987 under the supervision of Professor Peter Andrews. He subsequently joined the Department of Computer Science at Carnegie Mellon University as research faculty where he became Professor in 2002 and Director of Graduate Programs in 2004. He has advised 16 completed Ph.D. theses and won the Herbert A. Simon Award for Teaching Excellence in the School of Computer Science in 2002. He served as trustee, vice president, and president of CADE, Inc., the governing body of the International Conference on Automated Deduction, and on advisory boards for INRIA and the Max-Planck-Institute for Computer Science. He has chaired several conferences and program committees, and is a member of the editorial boards for Theoretical Computer Science, Journal of Automated Reasoning, and the Journal of Symbolic Computation. His research interests include programming languages, logic and type theory, logical frameworks, and automated deduction.. His website is http://www.cs.cmu.edu/~fp/.