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Typed Lambda Calculi and Applications 2005, Selected Papers

Preface

The present issue of *Fundamenta Informaticae* contains final, revised and expanded versions of selected papers presented at the 7th International Conference on Typed Lambda Calculi and Applications (TLCA 2007), held in Nara, Japan from 21st to 23rd April, as part of the Federated Conference on Rewriting, Deduction and Programming (RDP 2005). The proceedings of the conference appeared in Volume 3461 of Springer's LNCS series. The collection of papers included in this issue is a representative sample of the current research in the domain of typed lambda-calculi and their applications in Computer Science, in particular in the area of program verification and foundations of proof assisants. The first three papers are based on invited lectures given at the conference, while the subsequent papers are selected from the submitted papers.

The paper by Thierry Coquand sheds light on the role of impredicativity in type systems by analyzing a fragment of the polymorphic lambda calculus from a proof-theoretical perspective.

The paper by Amy Felty gives an introduction to Foundational Proof Carrying Code — an approach to deliver code together with machine verifiable safety guarantees based on a small trusted code base.

The paper by Susumi Hayashi explores a relation between the proof-theoretic concept of limit computable mathematics and proof animation with the goal of finding errors in the formalisation of proofs.

The paper by Andreas Abel and Thierry Coquand shows how a PER model on untyped terms can be used to decide equality of Martin-Löf's Logical Framework with strong Σ types.

The paper by Amal Ahmed et al analyzes a language with a type system allowing updates of memory cells with values of different types based upon the standard linear lambda calculus.

The paper by Ferruccio Damiani investigates a type system that combines intersection types and recursive definitions, allowing it to assign types to recursive programs that would not be typable in a simple type discipline.

The paper by René David and Karim Nour presents strong normalisation proofs for symmetric lambda calculi, which correspond to classical logic, that can be formalized within arithmetic.

The paper by James Laird investigates a language with control operators from a semantical perspective, showing that nested function calls can be eliminated without loosing expressivity.

The editors are very grateful to the authors for submitting their papers to this special issue of *Fundamenta Informaticae*, and to the referees for their helpful comments.

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