Fachbereich Mathematik und Informatik
Prof. Dr. K. Ostermann

Sebastian Erdweg, seba@informatik
Tillmann Rendel, rendel@informatik

Philipps Universität Marburg

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Programming Languages and Types
Homework Assignment 12

Please hand in your homework by email to `mailto:pllecture@informatik.uni-marburg.de` until January 28. Please submit your solutions in appropriate file formats.

H12.1 Type Inference for the Simply Typed Lambda Calculus

1. Implement a type checker for the simply typed lambda calculus with let expressions and type variables.

2. Implement a unification algorithm for simple types.

3. Implement type inference for the simply typed lambda calculus, that is, implement a constraint generator and a constraint solver.

H12.2 Type Inference for the Simply Typed Lambda Calculus with Let Polymorphism

1. Implement a type checker for the simply typed lambda calculus with let expressions, type variables and let polymorphism.

2. Implement a unification algorithm for let polymorphic types.

3. Implement type inference for the simply typed lambda calculus with let polymorphism, that is, implement a constraint generator and a constraint solver which do not substitute let-bound expressions into the respective bodies.