

Simply typed lambda calculus extended with reference type in categorical model

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Abstract

Simply typed lambda calculus is known part of type systems frequently used in real functional programming languages. We extend this calculus with reference types that enable to work with a memory. After formal definition of semantics and type checking, we model so extended calculus by categories. Categorical models are not only exact, but enable some graphical output that is suitable for practiced programmers and students.

Keywords: typed lambda calculus, reference types, categories