

Perspectives of semantic modeling in categories

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Abstract. The reliability of programs and program systems is a very topical issue, especially due to the rapidly evolving technologies present in all areas of daily life. Different approaches are used to achieve reliability in the development of programs and program systems. All these techniques are based on formal models of system functionality and these models are grounded in the formal semantics of the programming languages used. In this talk, we show the most important results of our research, in which we focused on categorical models and semantic methods in theoretical computer science. The main achieved results are constructions of categorical models for denotational semantics of imperative languages and operational semantics of imperative languages. Other results discussed in this talk are the results focused on categorical modeling of various other problems in theoretical computer science: semantic modeling of some computations, categorical relationships between functions, properties of categorical models of components and relationships between them and formulation of denotation semantics for a new compositional/concatenative language.