Formalizing Termination of Functional Programs and Term Rewriting Systems in PVS

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Abstract. Termination is an important property for both functional programs and term rewriting systems. Although undecidable, several semi-decision strategies have been used to address such problem and reason over it, such as the Size Change Principle [2], Type Check Conditions, Calling Context Graphs [3] and Dependency Pairs [1]. Formalizations for the correctness of such termination criteria have been provided in several proof assistants in order to improve automation of termination of given specifications. Such formalizations in the Prototype Verification System (PVS) [4], a proof assistant with a functional specification language that allows higher order logic and performs proofs following the Gentzen Calculus of Sequents, will be discussed, including how criteria in both functional programs and term rewriting systems can be related and used for increase automation level of termination proofs.

References

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