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**Validating mathematical theorems and algorithms with RISCAL.** (English) [Zbl 1417.68192](#)  
Rabe, Florian (ed.) et al., Intelligent computer mathematics. 11th international conference, CICM 2018, Hagenberg, Austria, August 13–17, 2018. Proceedings. Cham: Springer. Lect. Notes Comput. Sci. 11006, 248-254 (2018).

Summary: RISCAL is a language for describing mathematical algorithms and formally specifying their behavior with respect to user-defined theories in first-order logic. This language is based on a type system that constrains the size of all types by formal parameters; thus a RISCAL specification denotes an infinite class of models of which every instance has finite size. This allows the RISCAL software to fully automatically check in small instances the validity of theorems and the correctness of algorithms. Our goal is to quickly detect errors respectively inadequacies in the formalization by falsification in small model instances before attempting actual correctness proofs for the whole model class.

For the entire collection see [\[Zbl 1392.68030\]](#).

**MSC:**

68T15 Theorem proving (deduction, resolution, etc.) (MSC2010)  
[68Q60](#) Specification and verification (program logics, model checking, etc.)

**Keywords:**

[formal specification](#); [falsification](#); [model checking](#)

**Software:**

[Nitpick](#); [RISCAL](#)

**Full Text:** [DOI](#)