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A mechanized proof system of the third generation calculus in Coq. (Chinese. English summary) Zbl 07494929

Summary: Based on the proof assistant Coq, a formal verification of the third generation calculus theory advocated by previous researchers is completely implemented, including Coq descriptions of all the definitions and theorems. A proof code of all the theorems is given without exception, and all the formalization processes have been verified by Coq. The formal proof demonstrates that the Coq-based mechanized proof has the characteristics of readability and interactivity. The proof process is standardized, rigorous and reliable. This paper is an attempt of the idea that researchers learn, understand, construct, and even educate mathematics by computer assistant.

MSC:
03B35 Mechanization of proofs and logical operations
44A45 Classical operational calculus
68V15 Theorem proving (automated and interactive theorem provers, deduction, resolution, etc.)

Keywords:
proof assistant Coq; the third generation calculus; formalization; mechanized proof

Software:
Coq

Full Text: DOI