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Strict coherence of conditional rewriting modulo axioms. (English) Zbl 1386.68080

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Summary: Conditional rewriting modulo axioms with rich types makes specifications and declarative programs very expressive and succinct and is used in all well-known rule-based languages. However, the current foundations of rewriting modulo axioms have focused for the most part on the unconditional and untyped case. The main purpose of this work is to generalize the foundations of rewriting modulo axioms to the conditional order-sorted case. A related goal is to simplify such foundations. In particular, even in the unconditional case, the notion of *strict coherence* proposed here makes rewriting modulo axioms simpler and easier to understand. Properties of strictly coherent conditional theories, like operational equitermination of the $\rightarrow_{R/B}$ and $\rightarrow_{R,B}$ relations and general conditions for the conditional Church-Rosser property modulo B are also studied.

MSC:

68Q42 Grammars and rewriting systems
03B70 Logic in computer science

Keywords:

conditional rewriting modulo equations; coherence; order-sorted specifications; operational termination; Church-Rosser property

Software:

CafeOBJ; CASL; Maude; OBJ3

Full Text: DOI

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