

Variant-based Equational Unification under Constructor Symbols

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Abstract

Equational unification of two terms consists of finding a substitution that, when applied to both terms, makes them equal modulo some equational properties. A narrowing-based equational unification algorithm relying on the concept of the *variants* of a term is available in the most recent version of Maude, version 3.0, which provides quite sophisticated unification features. A variant of a term t is a pair consisting of a substitution σ and the canonical form of $t\sigma$. Variant-based unification is decidable when the equational theory satisfies the *finite variant property*. However, this unification procedure does not take into account constructor symbols and, thus, may compute many more unifiers than the necessary or may not be able to stop immediately. In [1], we integrate the notion of constructor symbol into the variant-based unification algorithm. Our experiments on positive and negative unification problems show an impressive speedup.

References

- [1] Aparicio-Sánchez, D., Escobar, S., R., Sapiña, J.: Variant-based Equational Unification under Constructor Symbols. In: 36th International Conference on Logic Programming (Technical Communications), ICLP, Rende (CS), Italy, 18-24th September 2020. EPTCS 325, pages 38–51, 2020.

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