

## Problem #43

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*Summary: Design a framework for combining constraint solving algorithms.*

Design a framework for combining constraint solving algorithms.

### Remark

Some particular cases have been attacked: In [BS92] it was shown how decision procedures for solvability of unification problems can be combined. In [BS93] a similar technique is applied to (unquantified) systems of equations and disequations. In [Rin92] the combination of unification algorithms is extended to the case where alphabets share constants. In related work [Bou92], unification is performed in the combination of an equational theory and membership constraints.

Some further progress is in [Rin92].

The combination approach of [BS92] has been extended in [BS95a] to constraints involving predicate symbols other than equality, and [BS95b] in turn extends this approach to constraint-solving over solution domains that are not free structures. These results are presented in a uniform framework by [BS98].

The work of [Rin92] has been extended to the case of “shared constructors” by [DKR94].

### Comment sent by Miki Hermann

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Unification algorithms (and therefore also constraint solvers) cannot be combined in polynomial time, as proved by Hermann and Kolaitis in [HK96].

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