On the complexity of Bounded Second-Order Unification and Stratified Context Unification

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Abstract: Bounded Second-Order Unification is a decidable variant of undecidable Second-Order Unification. Stratified Context Unification is a decidable restriction of Context Unification, whose decidability is a long-standing open problem. This paper is a join of two separate previous, preliminary papers on NP-completeness of Bounded Second-Order Unification and Stratified Context Unification. It clarifies some omissions in these papers, joins the algorithmic parts that construct a minimal solution, and gives a clear account of a method of using singleton tree grammars for compression that may have potential usage for other algorithmic questions in related areas.

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