

INSTITUTSSEMINAR

Am Dienstag, dem 26. November 2024, spricht um 12:30 Uhr im Raum Z 2073

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zum Thema:

"ODD minimisation for strongly uniformly blockwise decomposable constraint languages".

Abstract:

The decision problem $\text{Hom}(_, _)$ is widely studied: Given two relational structures, we want to know if there is a homomorphism from the left-hand-side to the right-hand-side structure. Since $\text{Hom}(_, _)$ is NP-complete, often restricted versions are considered, where the given relational structures are promised to be in some class of structures. Here we consider the right-hand-side restriction $\text{Hom}(_, C)$, where the right-hand-side structure is promised to be in the class C and the left-hand-side can be any structure. Also we do not consider the decision version, but the ODD version $\text{ODD-Hom}(_, C)$, where the goal is to output an ODD (ordered decision diagram) that represents the set of all homomorphisms between the two given structures. ODDs are generalisations of OBDD (ordered binary decision diagrams) in which the variables are not Boolean, but can take as values (in this case) the vertices of the right-hand-side structure. We also consider $\text{Min-ODD-Hom}(_, C)$ which is similar to $\text{ODD-Hom}(_, C)$ but the ODD has to be vertex- and edge-minimal among all ODD that represent the set of homomorphisms.

We show that for every class of right-hand-side structures C , $\text{ODD-Hom}(_, C)$ is solvable in polynomial time iff $\text{Min-ODD-Hom}(_, C)$ is solvable in polynomial time and find an explicit criterion for C when this is the case. The results carry over to all representation formats between ODD and DNNF (decomposable negation normal forms).

Alle Interessierten sind herzlich eingeladen.