

## CSPs of bounded width and checking for type 2

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Bounded width is an important property of Constraint Satisfaction Problems (CSPs) that has been intensively studied for a number of years. The bounded width conjecture, recently confirmed by Barto and Kozik, states that the CSP parametrized by a relational structure  $\mathcal{A}$  is of bounded width if and only if the corresponding algebra  $\text{Alg}(\mathcal{A})$  (provided it is idempotent) generates a variety omitting types **1** and **2**. In this talk we consider the complexity of the problem: Given a relational structure  $\mathcal{A}$ , decide if algebra  $\text{Alg}(\mathcal{A})$  generates a variety omitting types **1** and **2**. It is known that if we are given the algebra  $\text{Alg}(\mathcal{A})$  itself, and if it is idempotent, then the problem can be solved in polynomial time. However, when input is just a relational structure, the problem is not known to be in  $NP$  or  $coNP$ . We show that if there is a uniform polynomial time algorithm solving problems of bounded width then omitting types **1** and **2** can be checked in polynomial time. A stronger version of the bounded width conjecture, not known to be true so far, would provide such an algorithm.