Contribution ID: **133**   Type: **not specified**

Network Satisfaction Problems Solved by k-Consistency

Friday, July 14, 2023 11:45 AM (20 minutes)

Manuel Bodirsky and Simon Knäuer

Abstract: We show that the problem of deciding for a given finite relation algebra A whether the network satisfaction problem for A can be solved by the k-consistency procedure, for some k, is undecidable. For the important class of finite relation algebras A with a normal representation, however, the decidability of this problem remains open. We show that if A is symmetric and has a flexible atom, then the question whether NSP(A) can be solved by k-consistency, for some k, is decidable (even in polynomial time in the number of atoms of A). This result follows from a more general sufficient condition for the correctness of the k-consistency procedure for finite symmetric relation algebras. In our proof we make use of a result of Alexandr Kazda about finite binary conservative structures.

Presenter: BODIRSKY, Manuel

Session Classification: Track B