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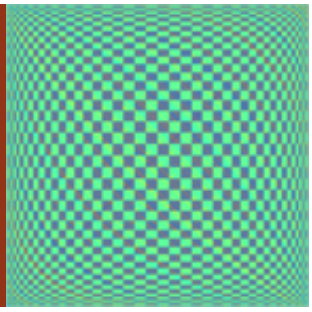

Seminar on Semigroups, Automata and Languages

Schützenberger automata for HNN-extensions of inverse semigroups and their use in algorithmic problems

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Abstract: In our talk we will review some of the combinatorial methods in inverse semigroup theory. We use Schützenberger automata that are instrumental - as shown by the combinatorial approach introduced by Munn and extended by Stephen - in the study of structural and algorithmic questions for inverse semigroup presentations.

HNN extensions, first introduced for groups, where they play an important role in applications to algorithmic problems, proved useful in the study of decidability questions also in the class of inverse semigroups. We study HNN-extensions of inverse semigroups via structure of their Schützenberger automata.

We will characterize Schützenberger automata for a class of lower bounded HNN-extensions. Based on our recent results with Paul Bennett, I will argue that this is a rather rich and important class of HNN-extensions. The automata contain a special subgraph - a core - with finitely many lobes from which all vital information about the automata can be retrieved. This gives us in some cases an effective construction of the Schützenberger automaton and thus provides a solution for the word problem.

Date: Friday, 16 October 2020, 14:30
Place: Online Zoom meeting

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