Analyzing Treewidth Heuristics on Grid Structures

Project Group "Praxis der Forschung"
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1 Topic

The treewidth is an important graph parameter that measures how tree-like a graph is with respect to separators. Though computing the treewidth is NP-hard, there are heuristics that perform well on many practical inputs.

2 Goal

The goal of this project is to get a better theoretical understanding of why these algorithms often work well and what their limitations are. To achieve this, commonly used heuristics should be studied on grids or grid-like structures, aiming for tight upper and lower bounds. Grids are of particular interest in the context of treewidth as large grids are the core obstruction for small separators. In fact, every graph of sufficiently large treewidth contains a large grid as minor.

3 Contact

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