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Treewidth computations. II. Lower bounds. (English) Zbl 1220.68071

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Summary: For several applications, it is important to be able to compute the treewidth of a given graph and to find tree decompositions of small width reasonably fast. Good lower bounds on the treewidth of a graph can, amongst others, help to speed up branch and bound algorithms that compute the treewidth of a graph exactly. A high lower bound for a specific graph instance can tell that a dynamic programming approach for solving a problem is infeasible for this instance. This paper gives an overview of several recent methods that give lower bounds on the treewidth of graphs.

For a review of Part I see *ibid.* 208, No. 3, 259–275 (2010; [Zbl 1186.68328](#)).

MSC:

[68R10](#) Graph theory (including graph drawing) in computer science

[05C05](#) Trees

[05C51](#) Graph designs and isomorphic decomposition

[05C85](#) Graph algorithms (graph-theoretic aspects)

Cited in 17 Documents

Keywords:

[treewidth](#); [lower bounds](#); [heuristics](#); [graph algorithms](#)

Software:

[Treewidthlib](#); [ComputeTW](#); [Boost](#); [BGL](#); [DIMACS](#)

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