Julius-Maximilians-
UNIVERSITÄT
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Lehrstuhl für
INFORMATIK I
Algorithmen & Komplexität

Institut für Informatik

Property-Preserving Reductions for Variants of Level Planarity

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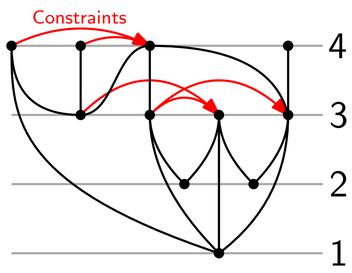
Problem

Constrained Level Planarity

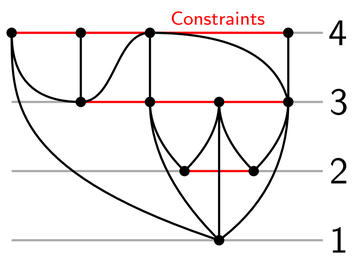
- Planar drawing with y-monotone edges
- *Levels* prescribe y-coords of vertices
- *Constraints* impose **partial** order on vertices



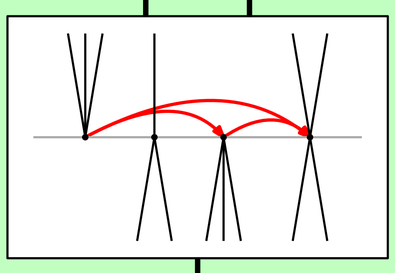
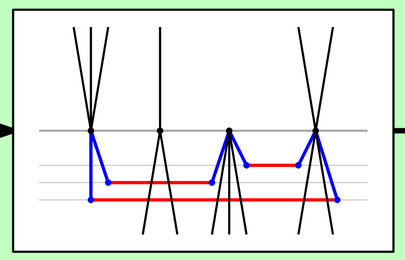
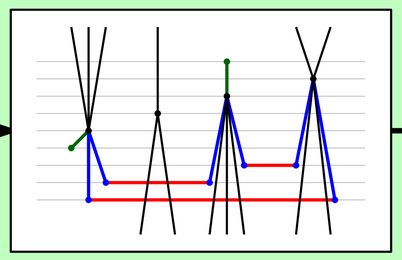
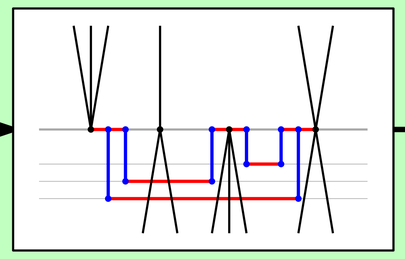
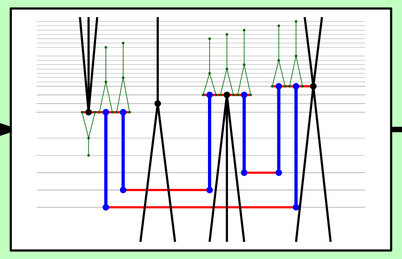
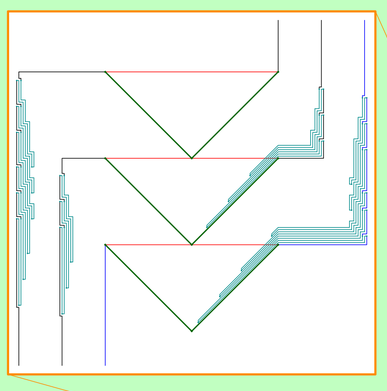
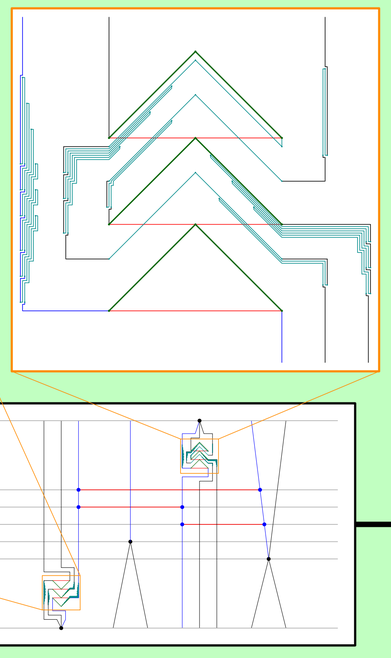
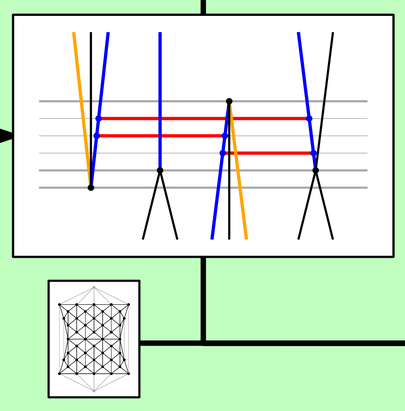
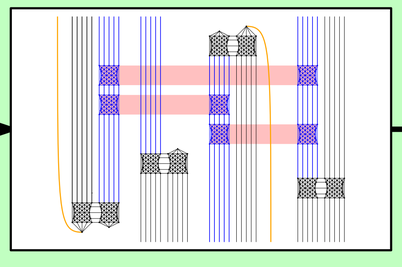
Reductions →

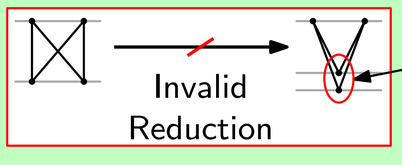
Ordered Level Planarity

- Planar drawing with y-monotone edges
- *Levels* prescribe y-coords of vertices
- *Constraints* impose **total** order on vertices



Reductions

	Constraint Expansion Move constraints to separate levels	Vertex Expansion Move vertices to separate levels	Preserved Properties
			• Outerplanarity • Chordality • Clique & Chromatic Number • Connectivity • Diameter increases by at most 2
			• Pathwidth • Treedepth
			• Maximum Degree • Cycle Graphs
			• k-Connectivity*



* Mustn't occur