(十) 图论: 树 (Trees)

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Definition (Spanning Tree (生成树))

A spanning tree T of an undirected graph G is a subgraph that is a tree with all vertices of G.

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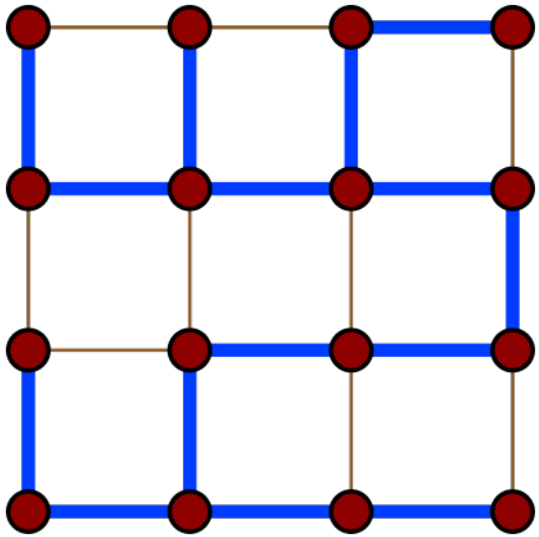

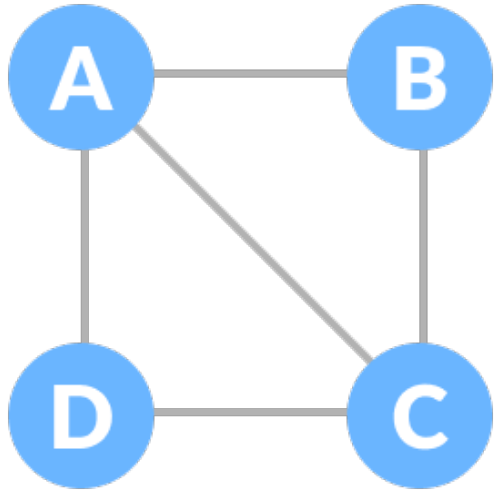

Definition (Subgraph (子图))

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Definition (Induced Subgraph (诱导子图))

Theorem

Every connected undirected graph G admits a spanning tree.

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Repeatedly deleting vertices in cycles until the graph is acyclic.

Definition (Minimum Spanning Tree (MST; 最小生成树))

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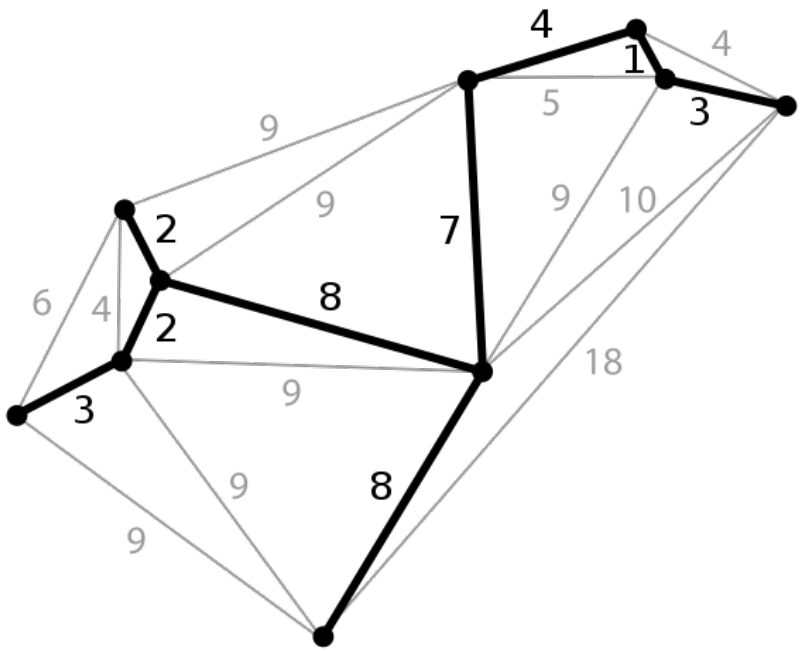

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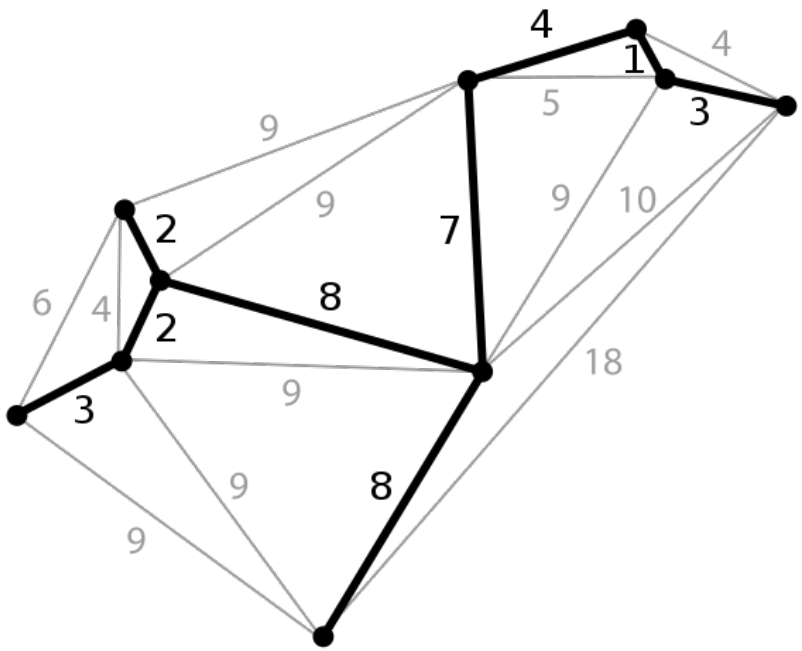

Existence? Uniqueness? Algorithms?

Theorem

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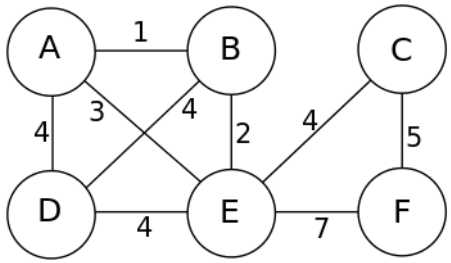
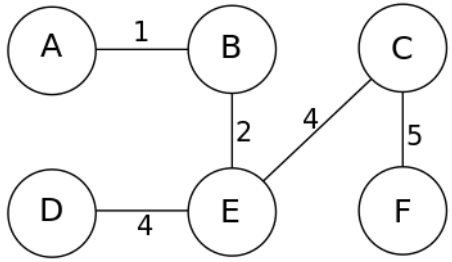
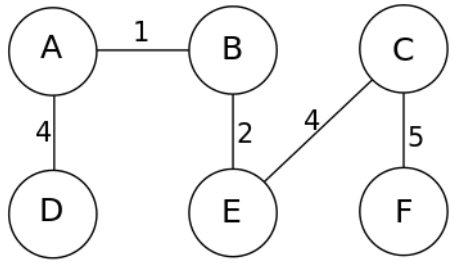
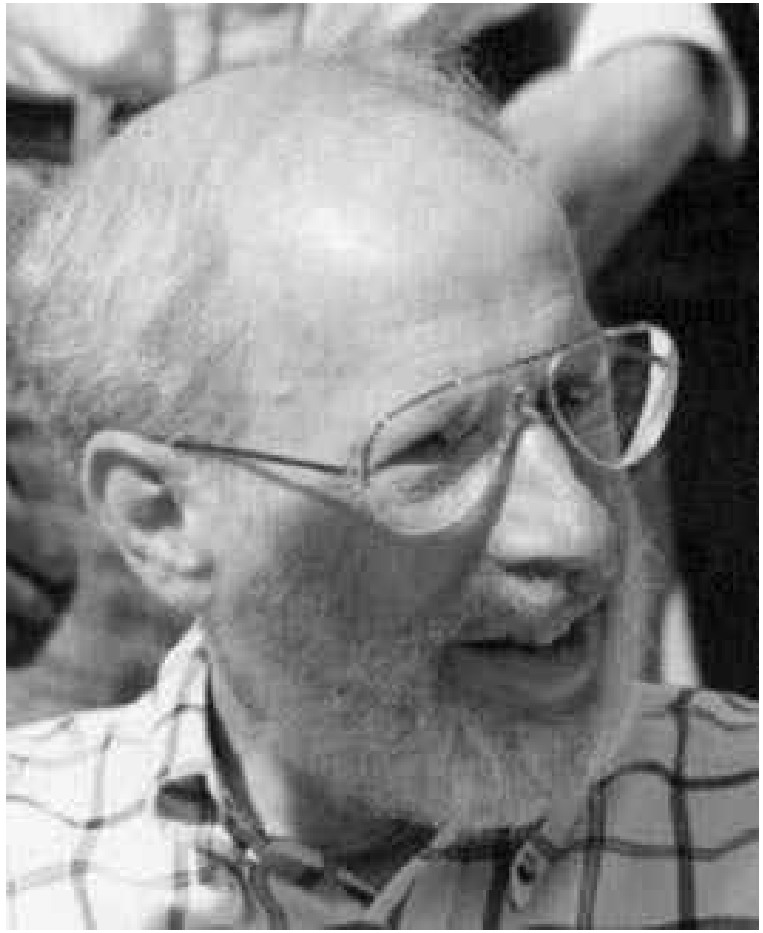




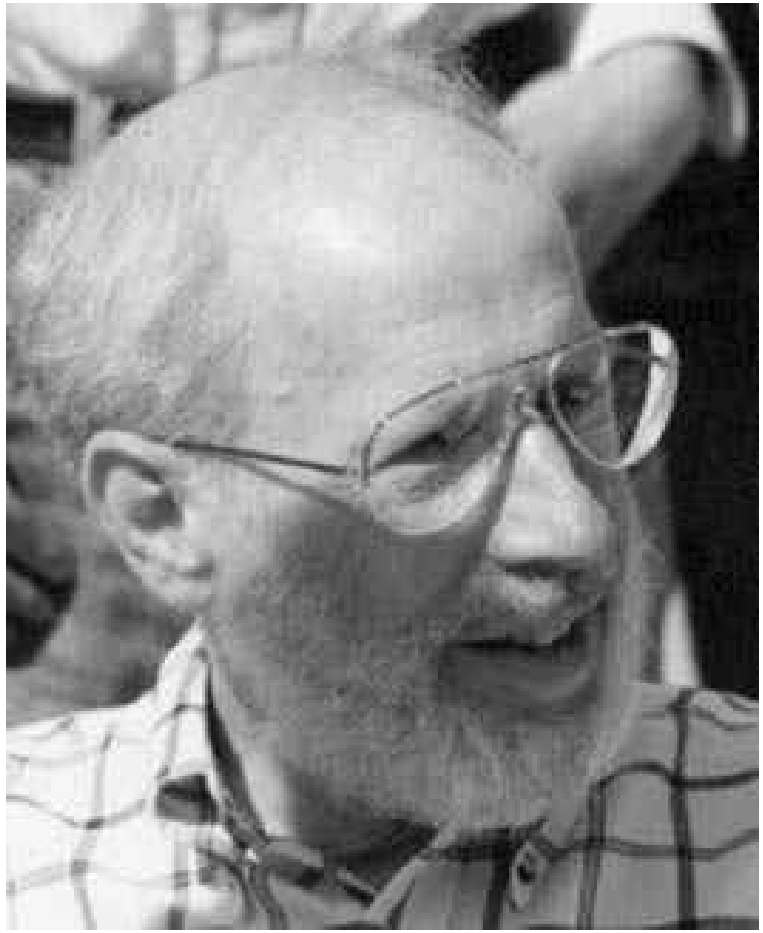




Joseph Kruskal (1928 ∼ 2010)

Robert C. Prim (1921 $\sim$)

Otakar Borůvka (1899 ∼ 1995)



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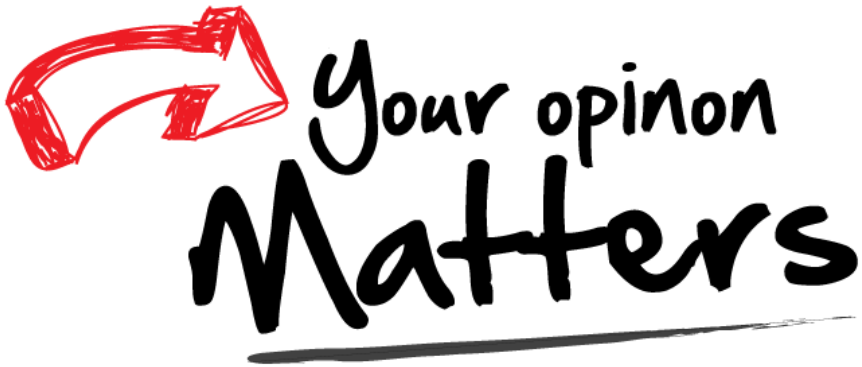
Thank
You!



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