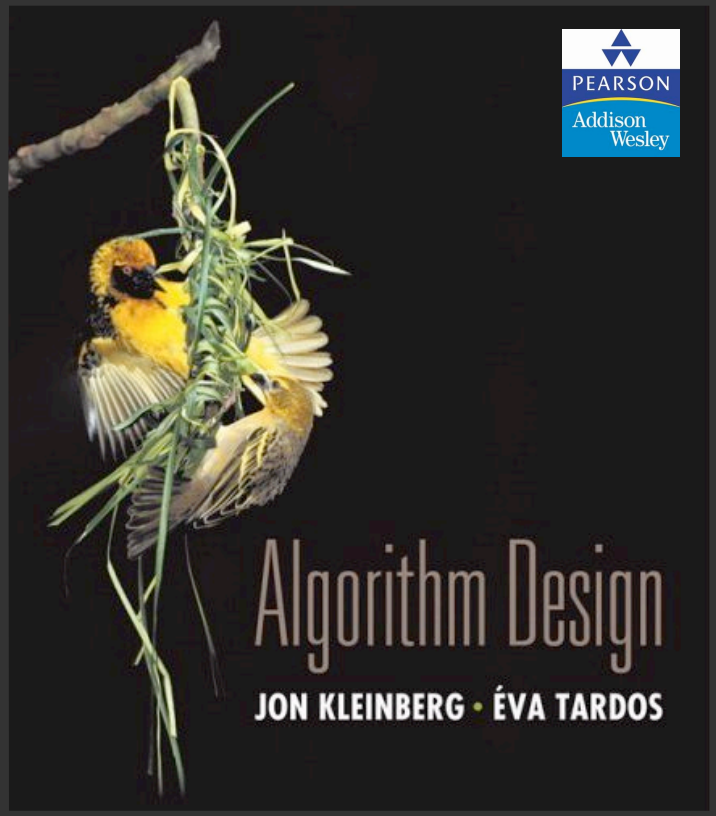


4. GREEDY ALGORITHMS II

- *Red-rule blue-rule demo*

Lecture slides by Kevin Wayne

http://www.cs.princeton.edu/~wayne/kleinberg-tardos

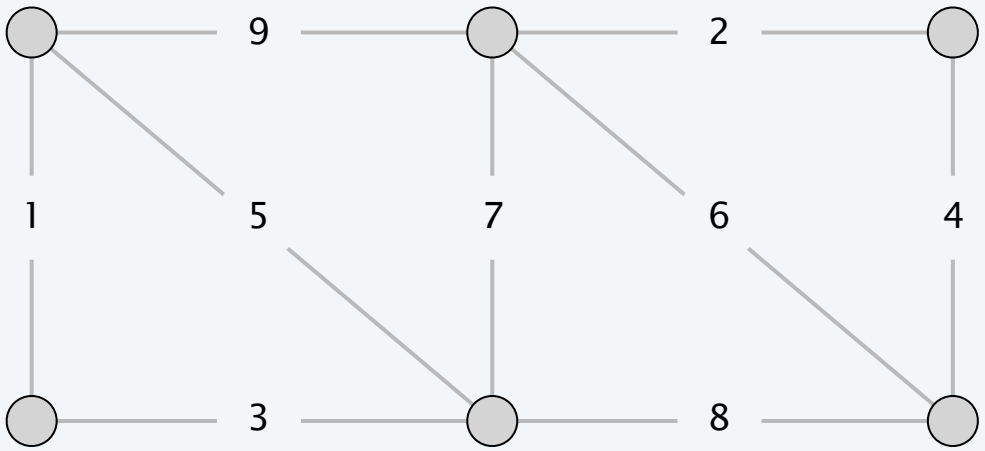
Last updated on Sep 8, 2013 6:20 AM

Red-rule blue-rule demo

Red rule. Let C be a cycle with no red edges. Select an uncolored edge of C of max weight and color it red.

Blue rule. Let D be a cutset with no blue edges. Select an uncolored edge in D of min weight and color it blue.

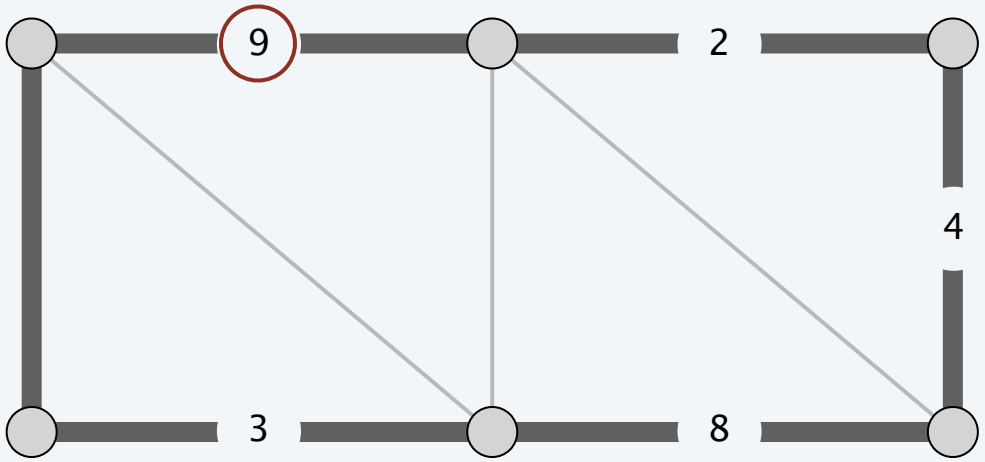
the input graph



Red-rule blue-rule demo

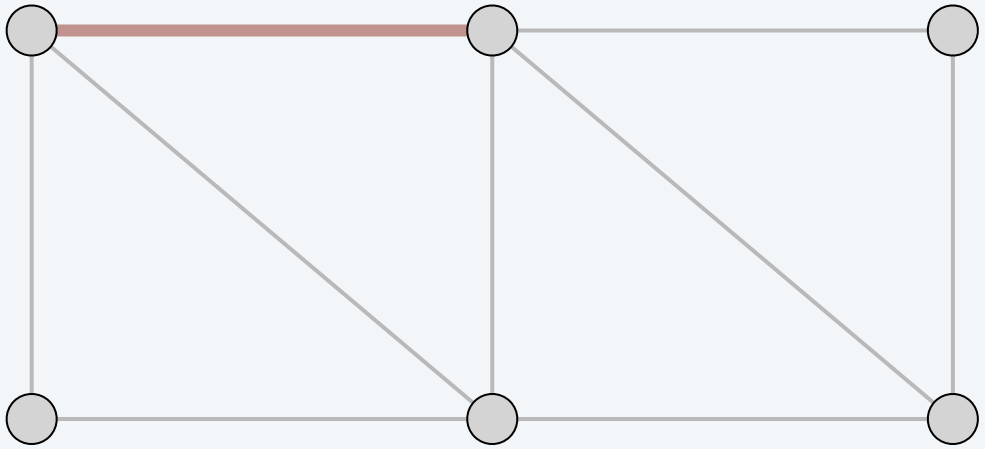
Red rule. Let C be a cycle with no red edges. Select an uncolored edge of C of max weight and color it red.

apply the red rule to the cycle



Red-rule blue-rule demo

current set of red and blue edges



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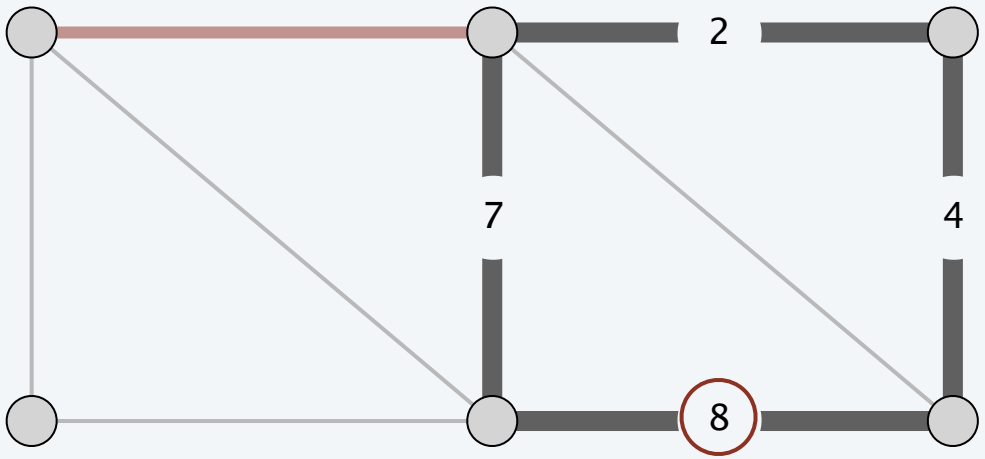

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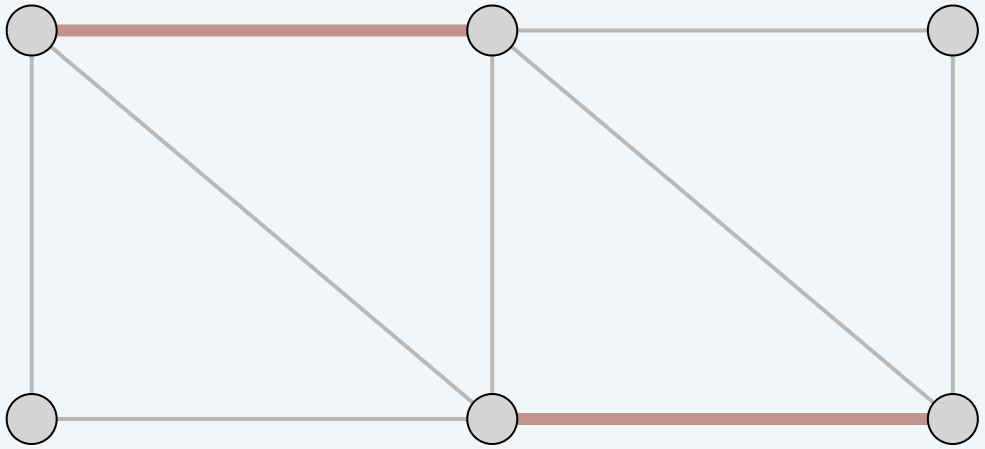
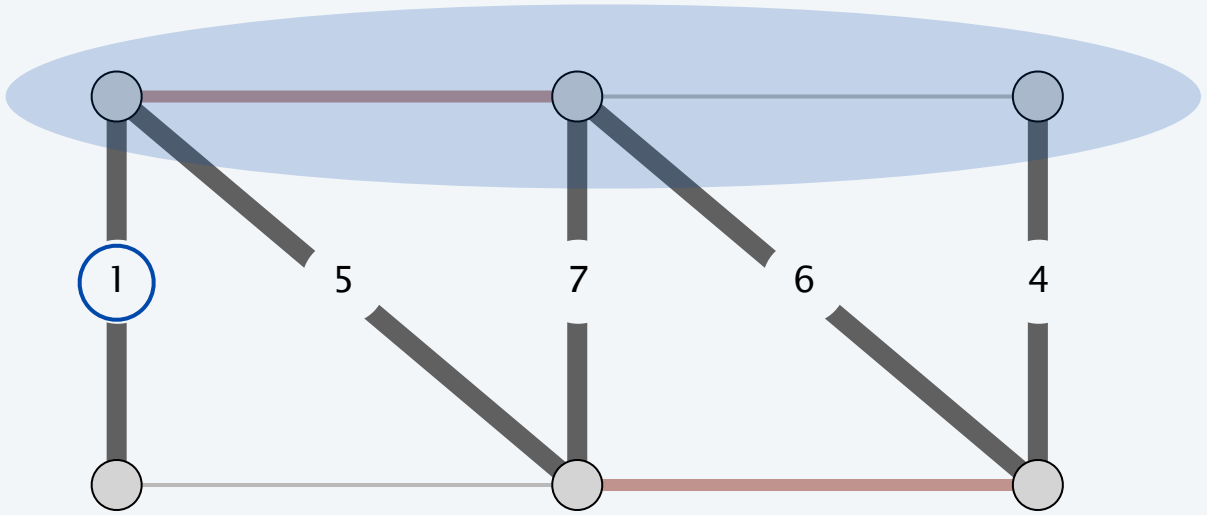


Red-rule blue-rule demo

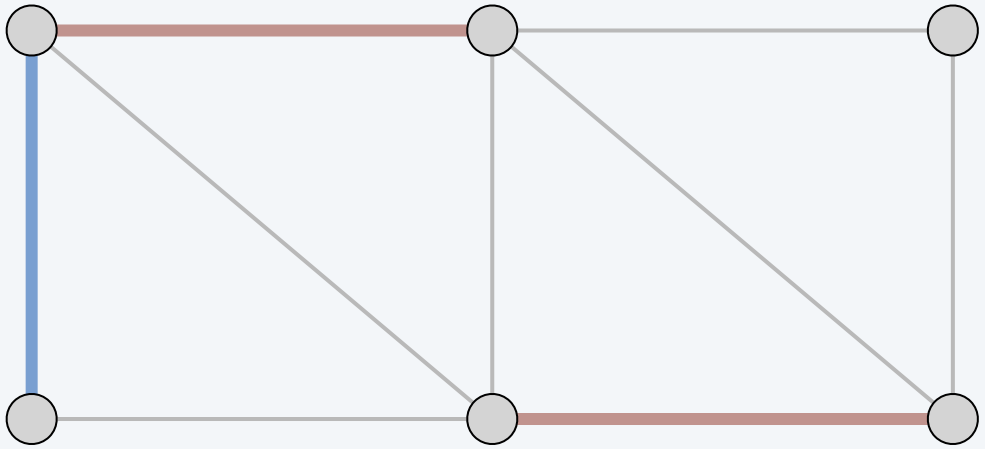
Blue rule. Let D be a cutset with no blue edges. Select an uncolored edge in D of min weight and color it blue.

apply the blue rule to the cutset



Red-rule blue-rule demo

current set of red and blue edges



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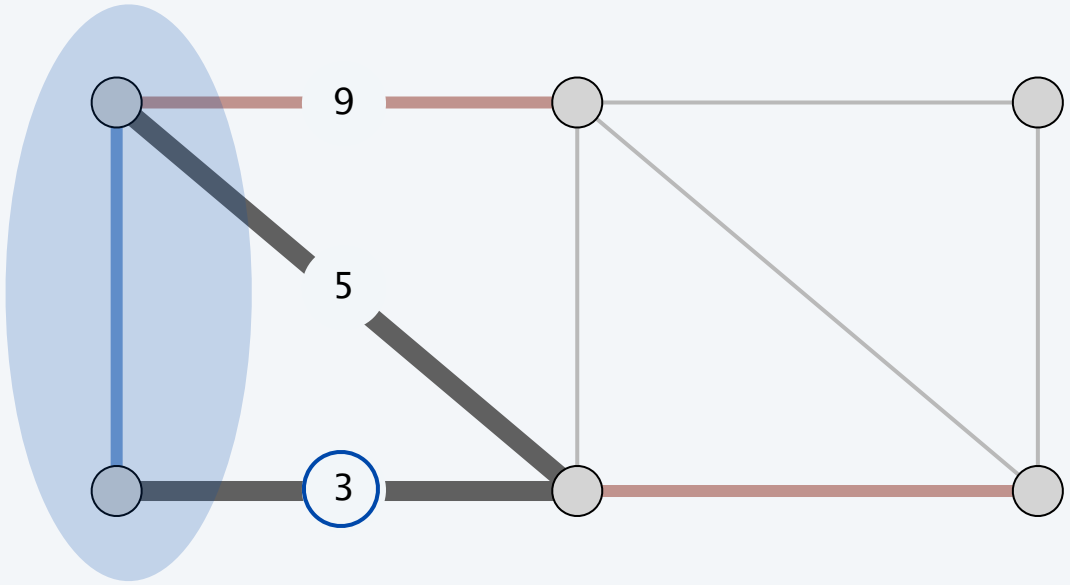
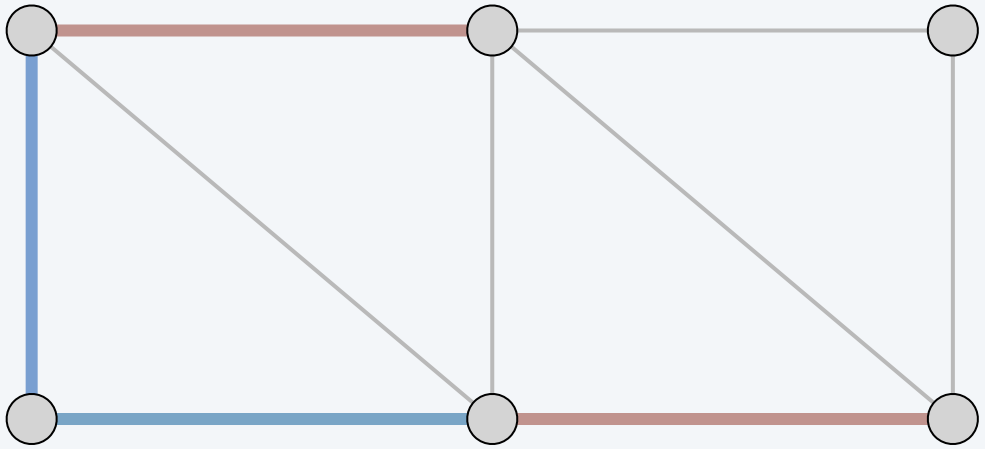


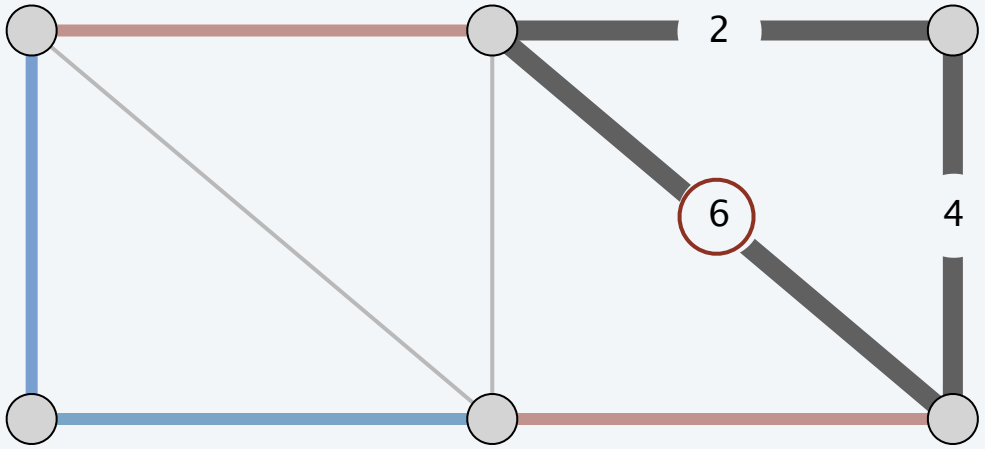
Red-rule blue-rule demo

current set of red and blue edges



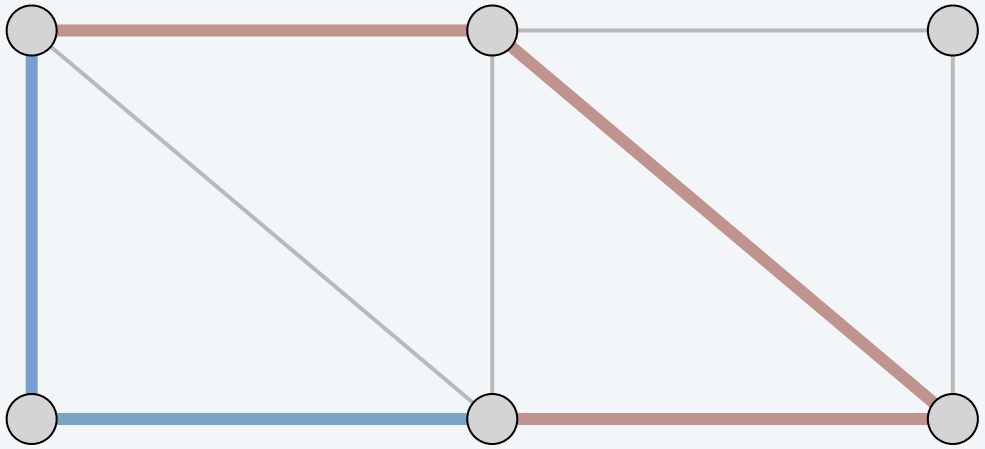
Red-rule blue-rule demo

apply the red rule to the cycle



Red-rule blue-rule demo

current set of red and blue edges



Red-rule blue-rule demo

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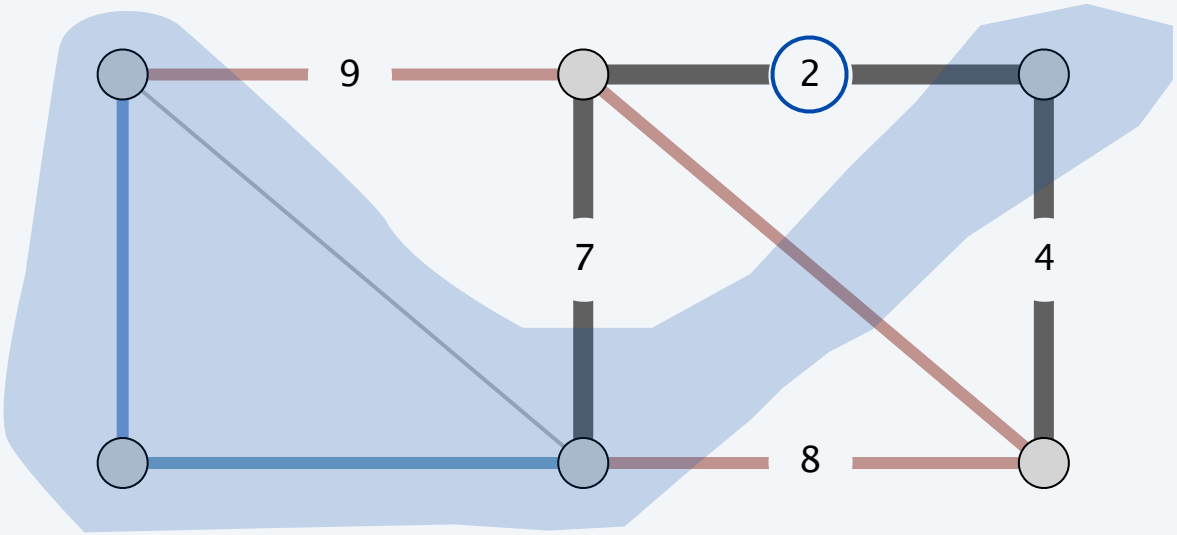
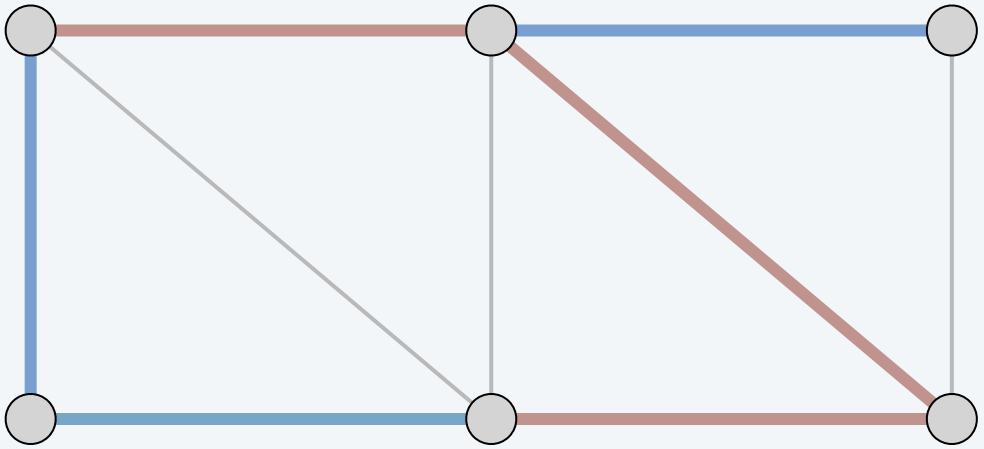
apply the blue rule to the cutset



Red-rule blue-rule demo

current set of red and blue edges



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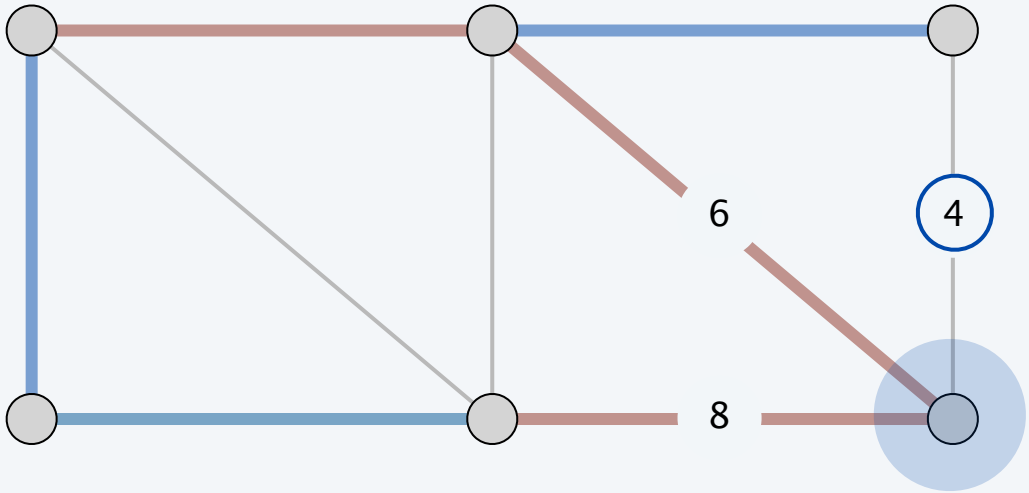
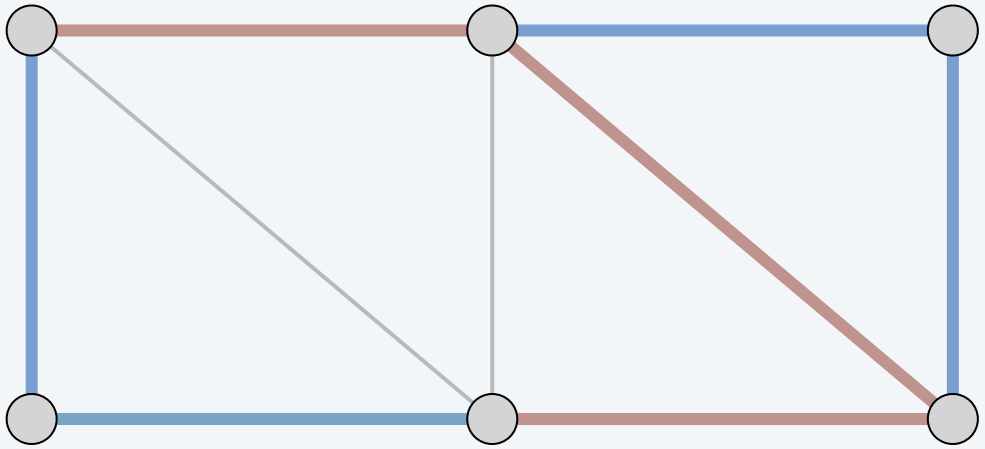


Red-rule blue-rule demo

current set of red and blue edges



Red-rule blue-rule demo

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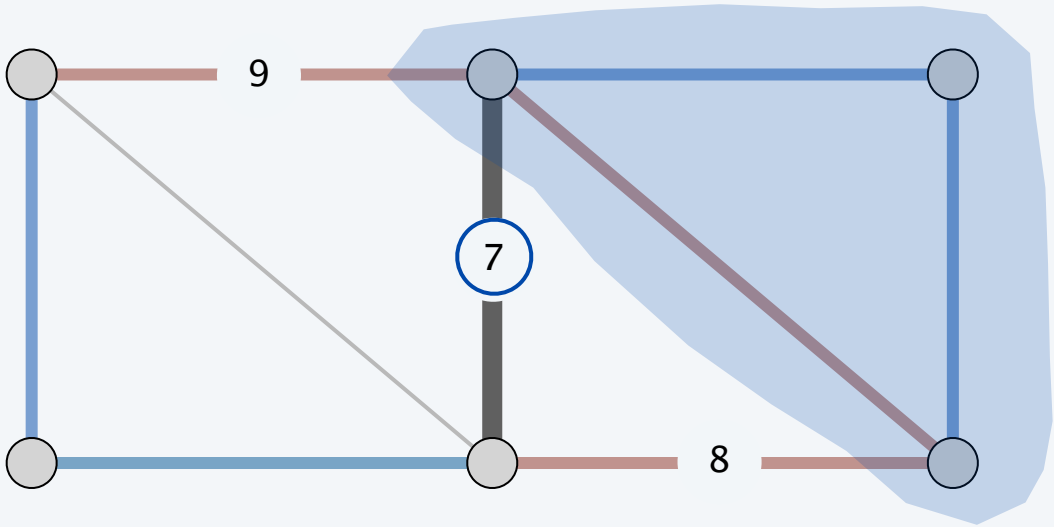
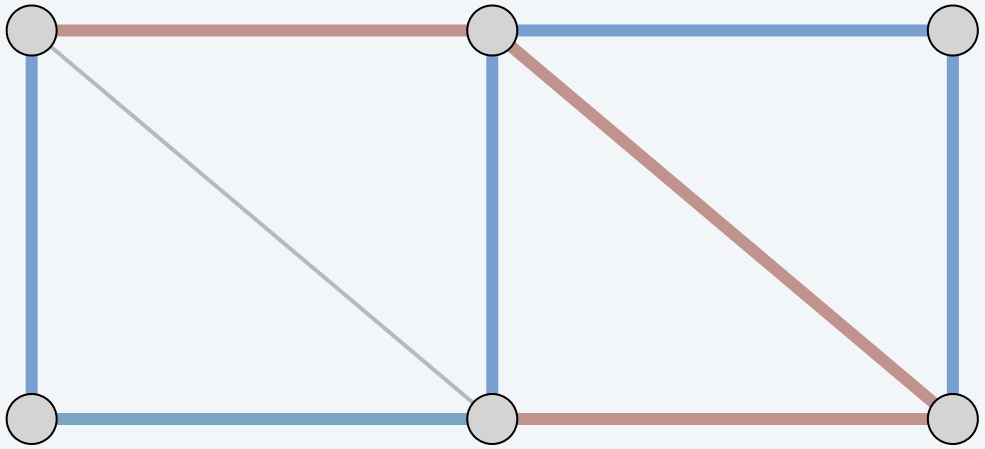
apply the blue rule to the cutset



Red-rule blue-rule demo

current set of red and blue edges



Red-rule blue-rule demo

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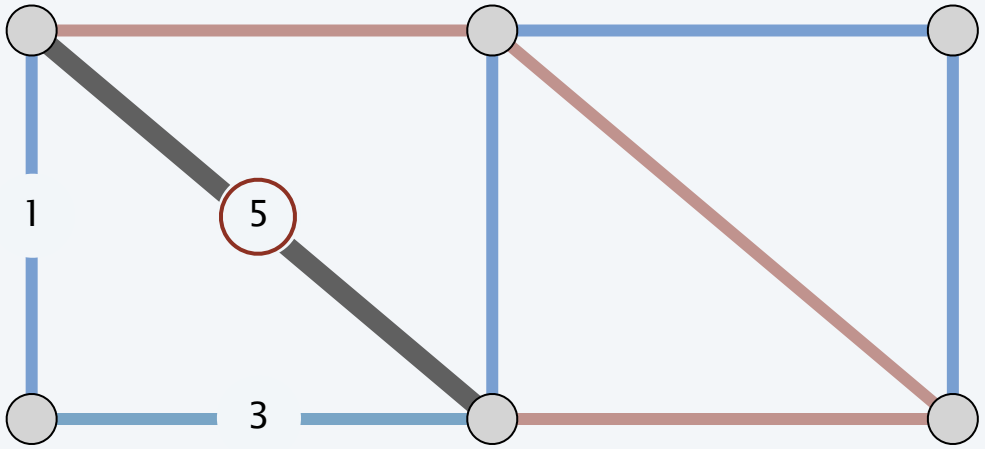
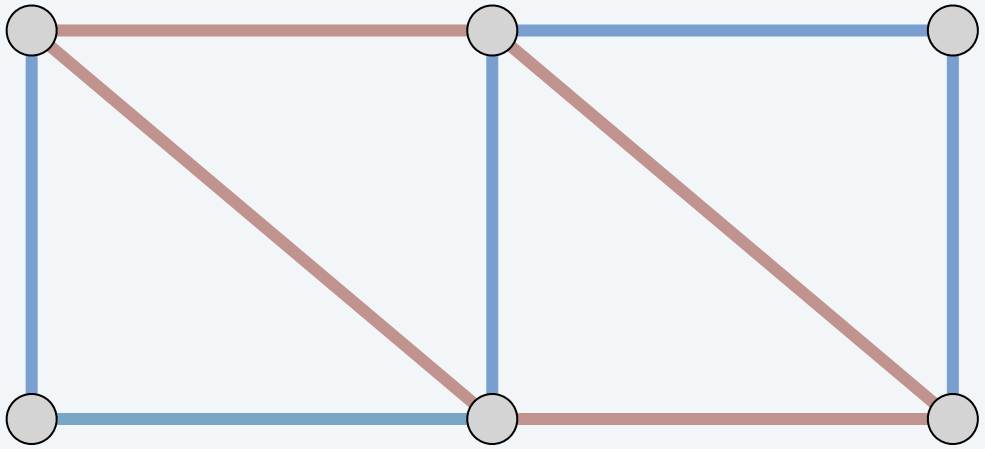
apply the red rule to the cycle



Red-rule blue-rule demo

current set of red and blue edges



Red-rule blue-rule demo

Greedy algorithm. Upon termination, the blue edges form a MST.

a minimum spanning tree