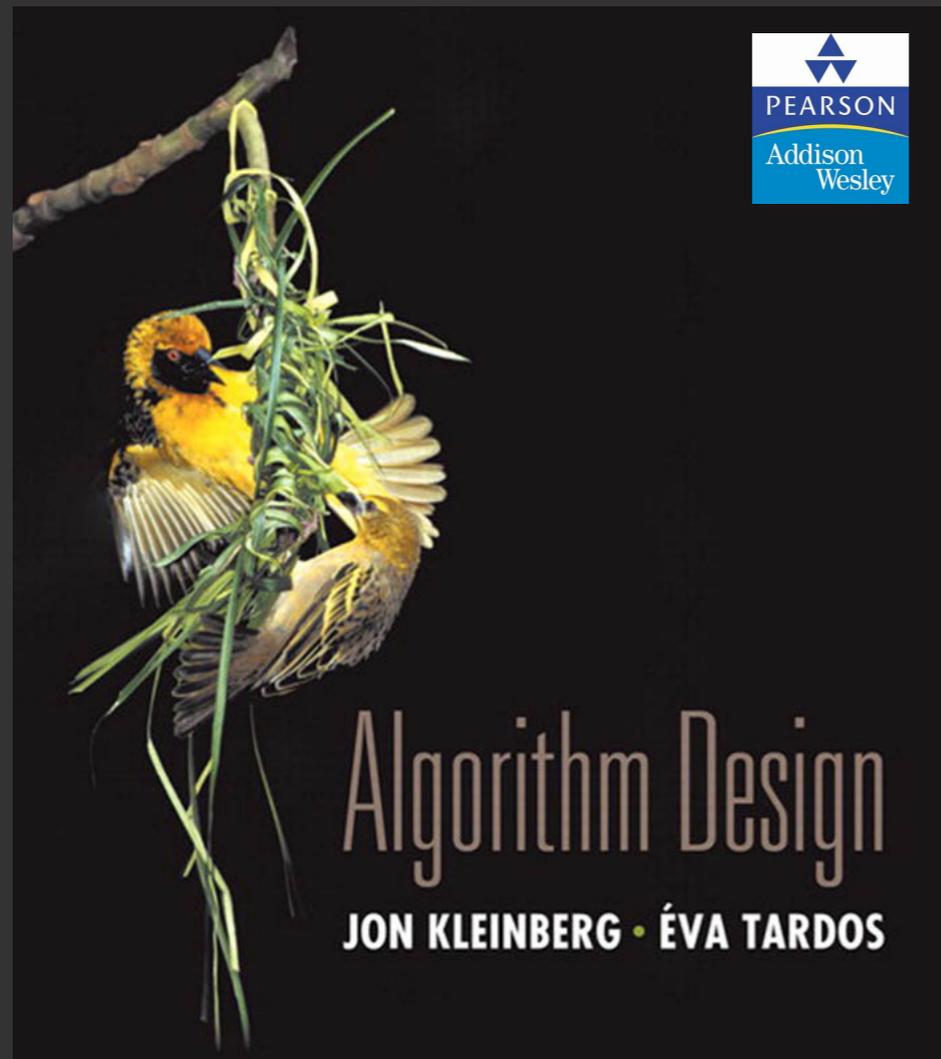


# INTRACTABILITY III

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- ▶ *greedy vertex cover algorithm demo*



Lecture slides by Kevin Wayne

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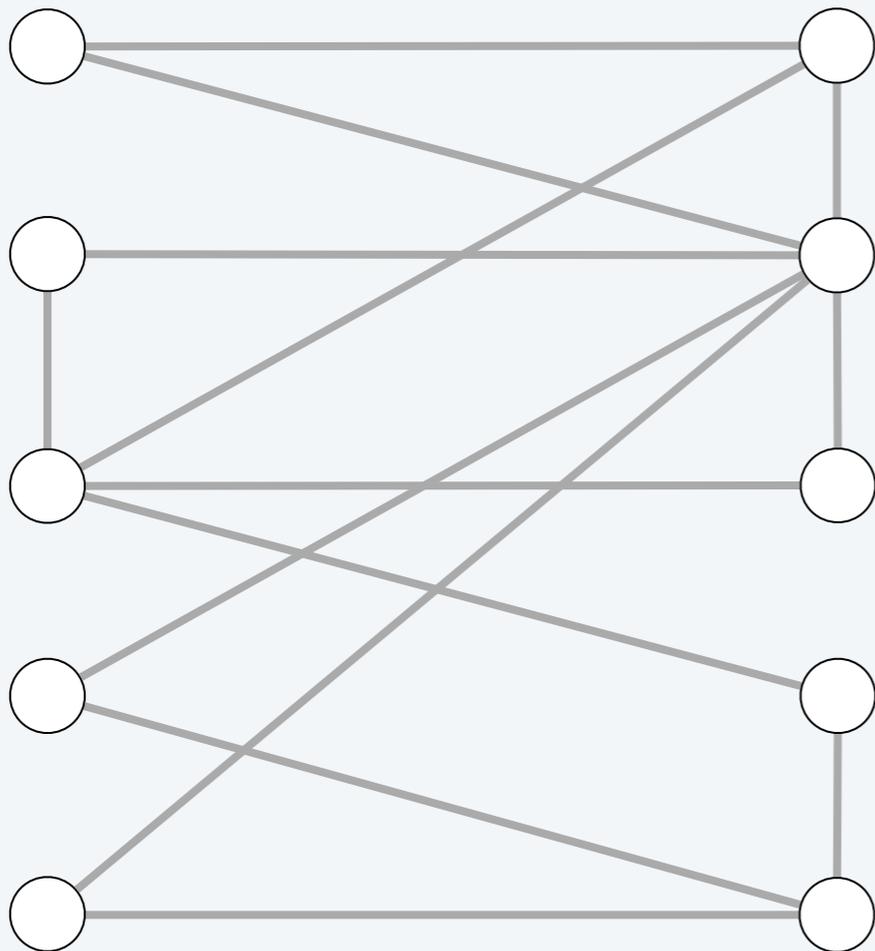
<http://www.cs.princeton.edu/~wayne/kleinberg-tardos>

# Greedy vertex cover algorithm

---

Repeatedly pick an arbitrary edge  $(u, v)$ .

- Add  $(u, v)$  to matching  $M$ .
- Add both  $u$  and  $v$  to vertex cover  $S$ .
- Delete all edges incident to either  $u$  or  $v$ .

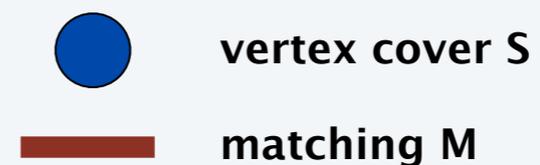
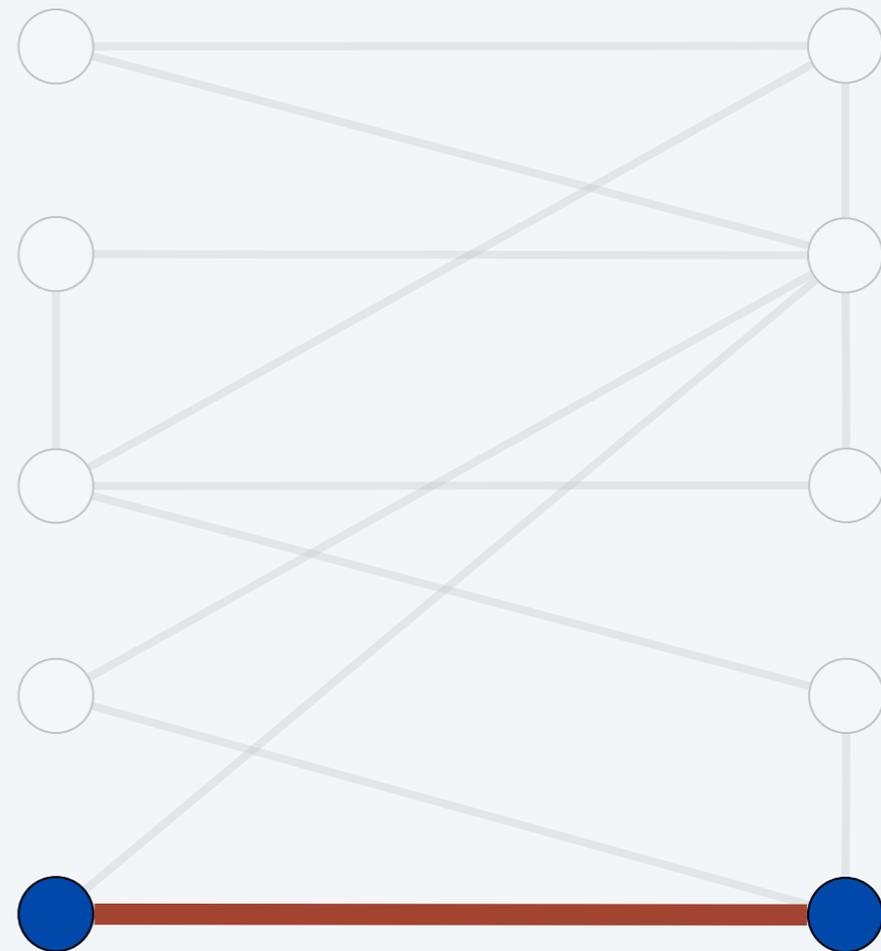
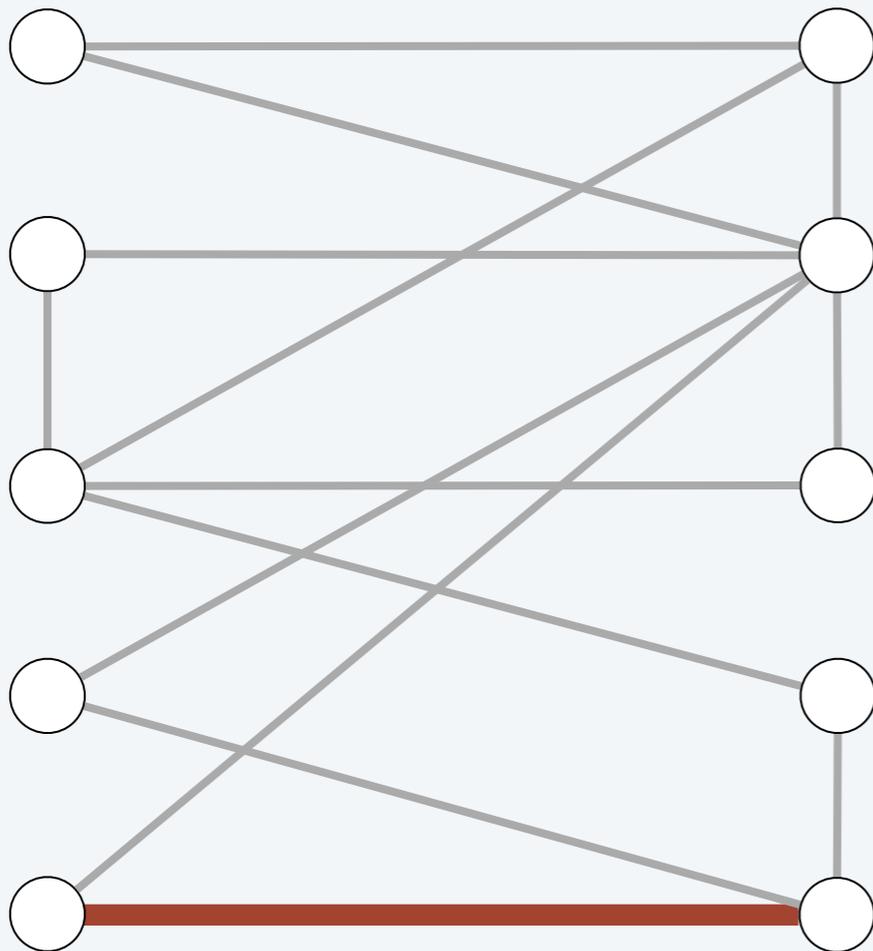


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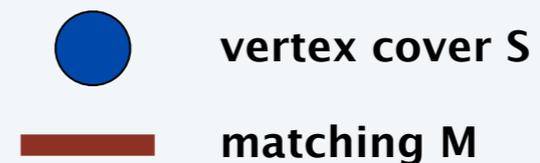
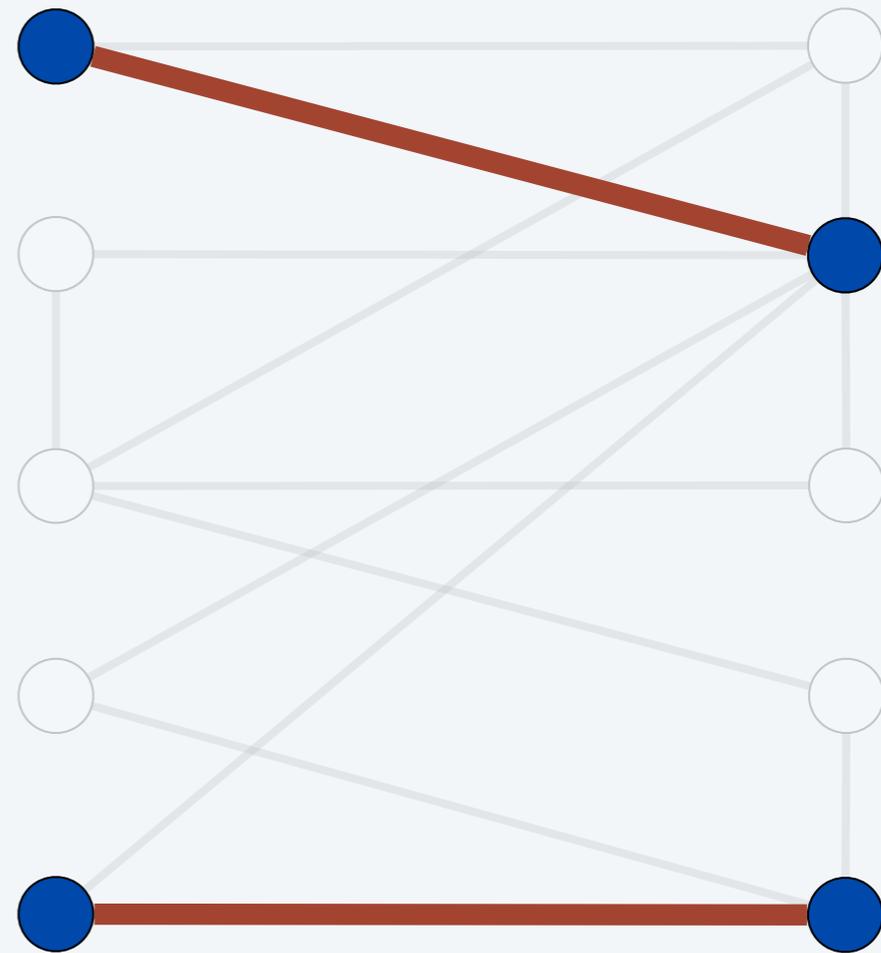
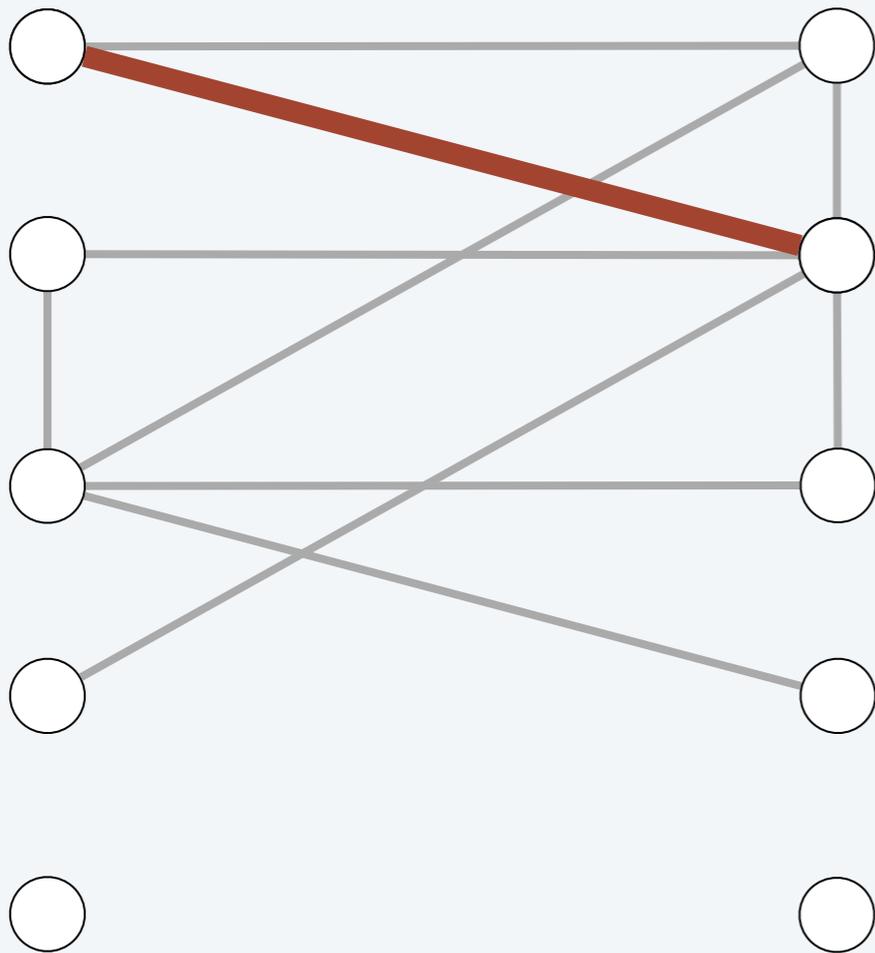


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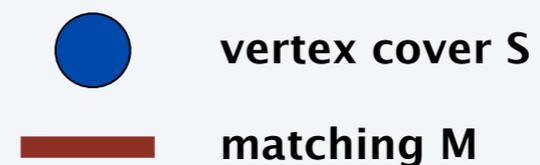
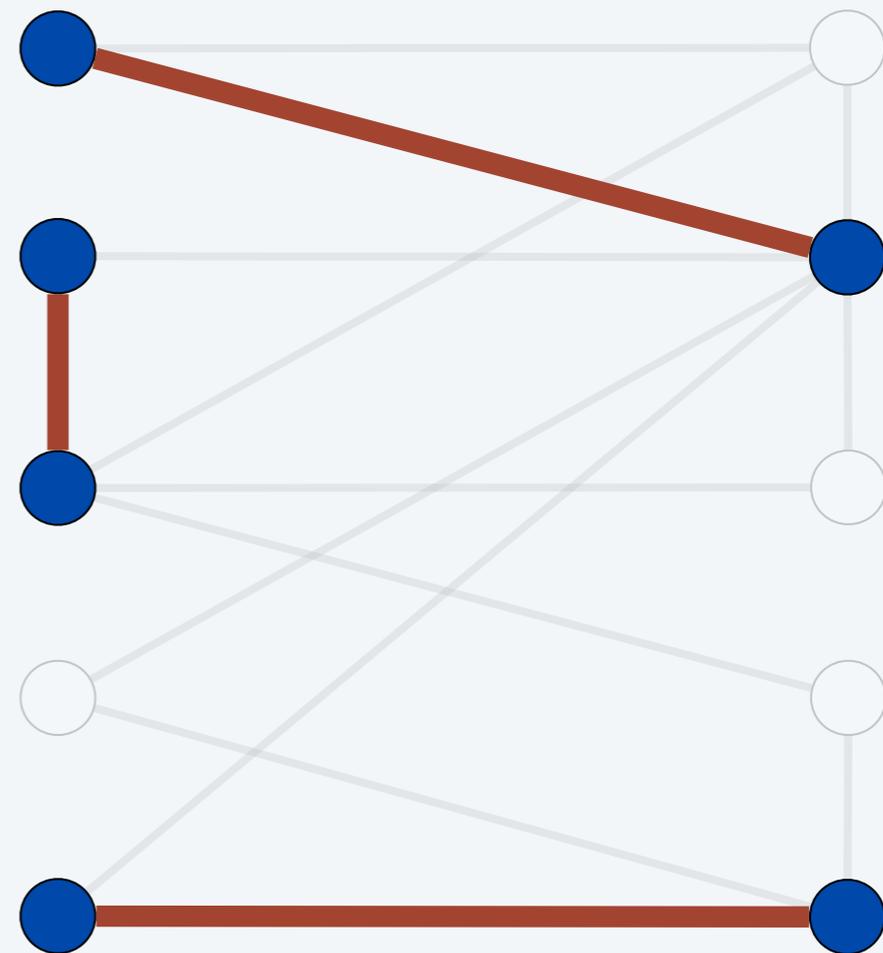
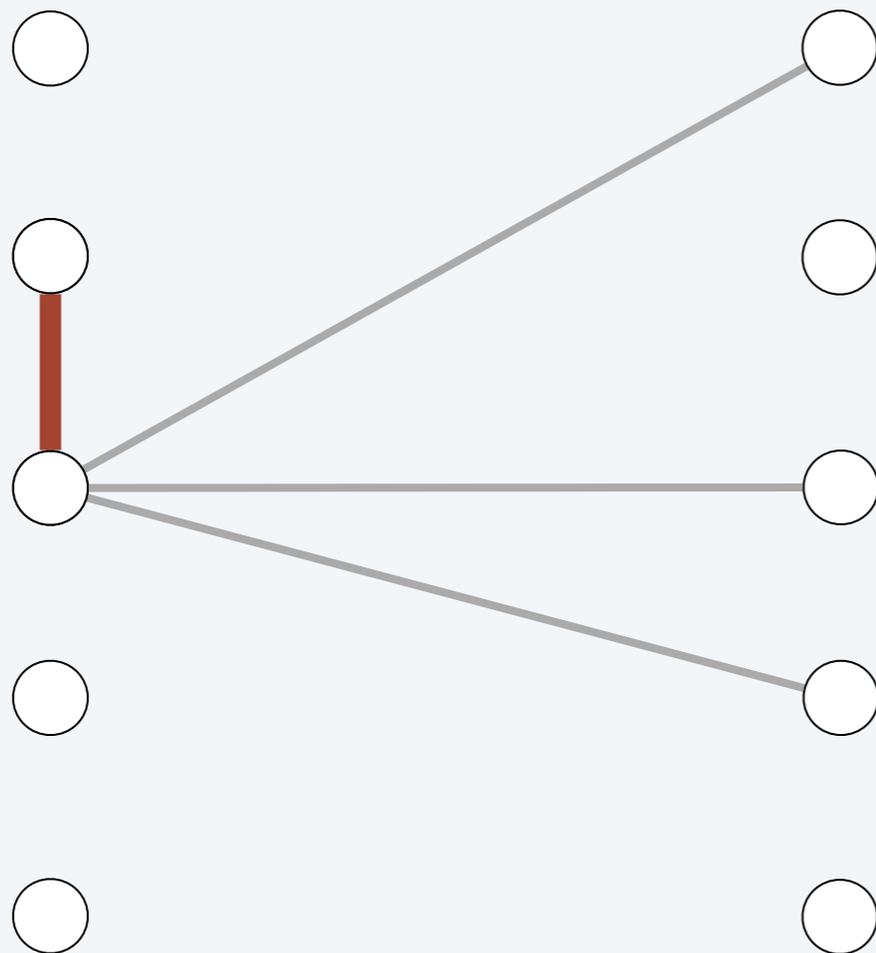


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---

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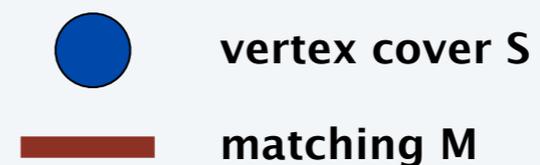
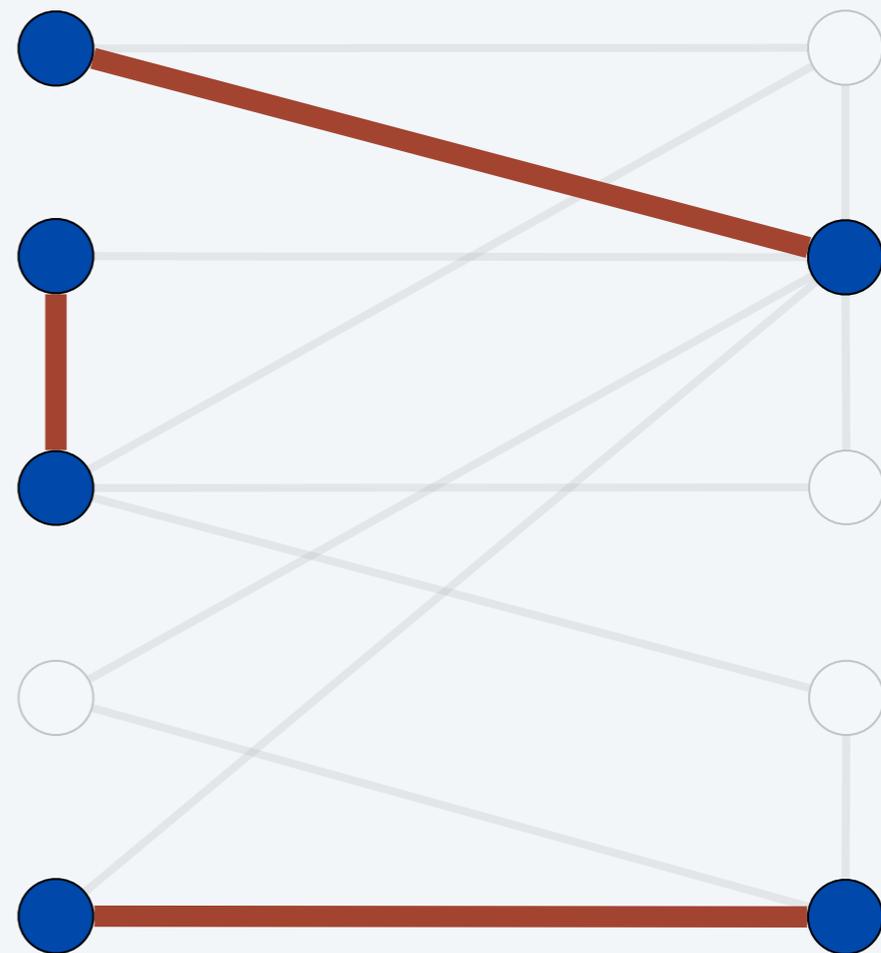
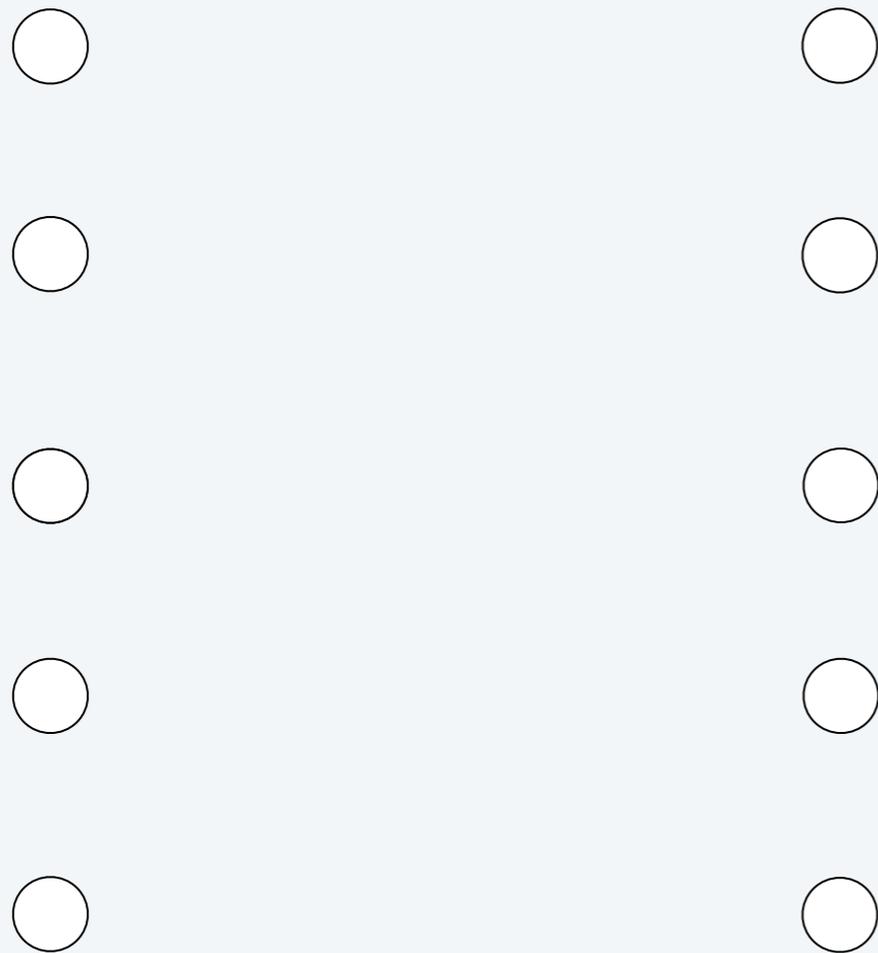


# Greedy vertex cover algorithm

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Repeatedly pick an arbitrary edge  $(u, v)$ .

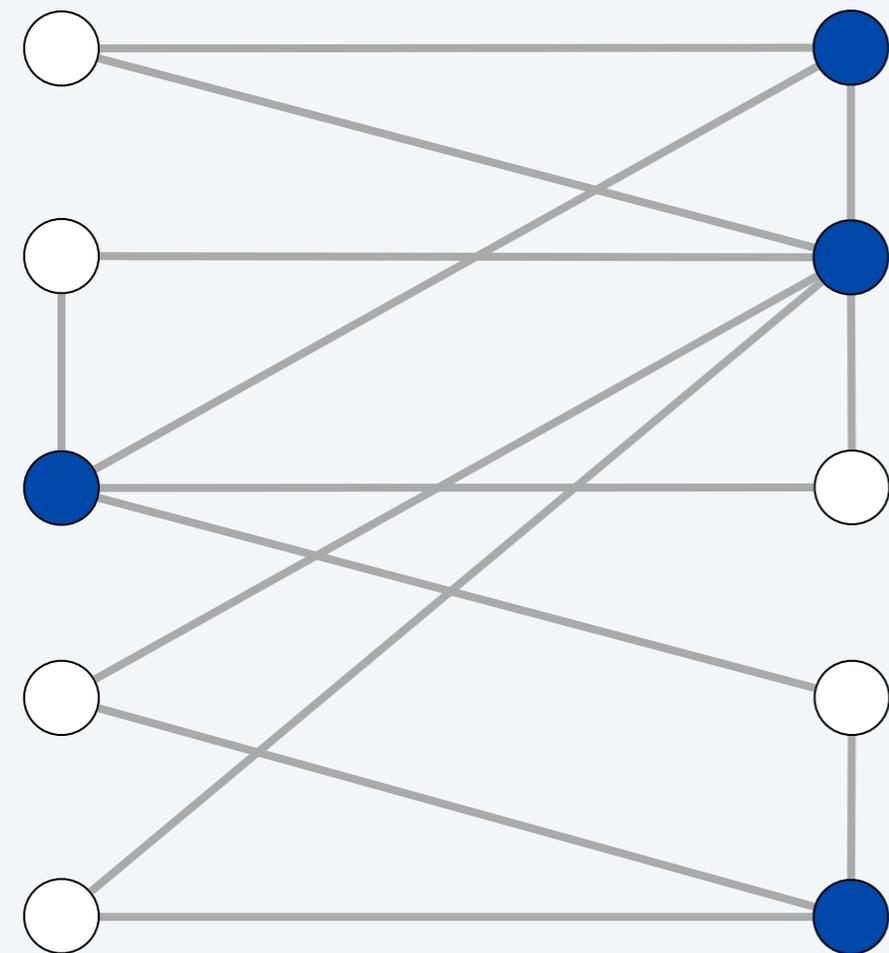
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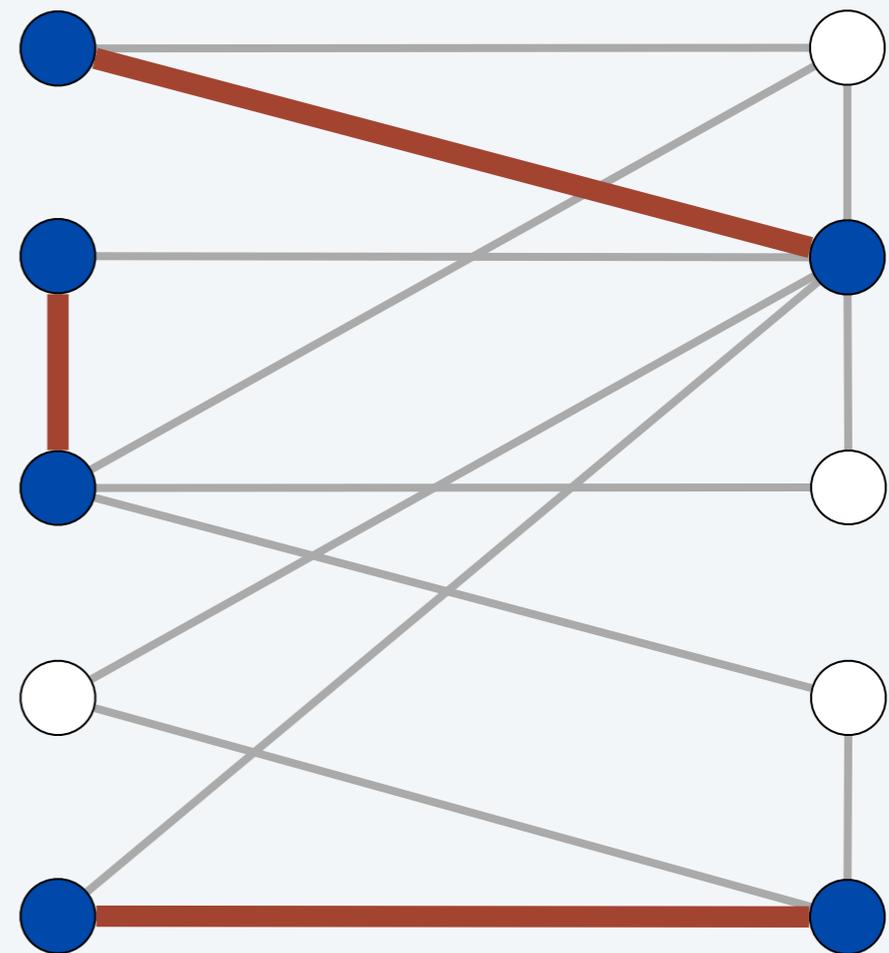
# Greedy vertex cover algorithm

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Greedy algorithm is not optimal.



 min-cardinality vertex cover  $S^*$



 vertex cover  $S$   
 matching  $M$