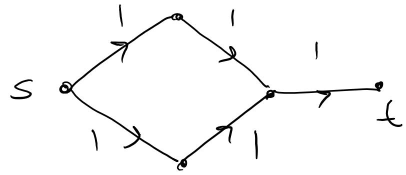
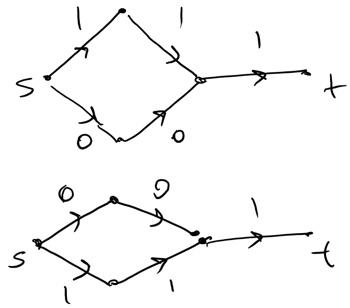
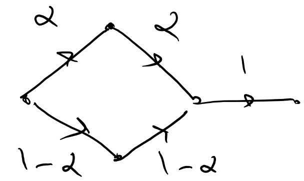
CSE 421 - Lecture 24

Monday, March 5, 2018 2:17 PM

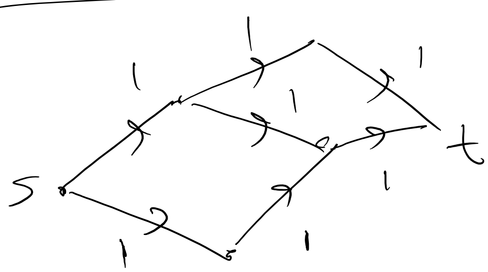
Max flow uniqueness



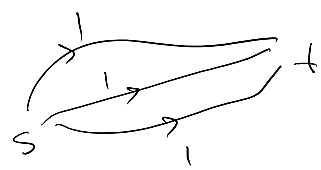




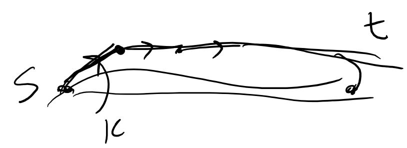
Max flow reduction



Max flo $\geq$ # edge disj path



Max flo $\leq$ # edge dis paths



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max # edge disj paths $\leq$ min # edges that disconnect s from t.

Every path from s $\to$ t uses at least one of these k edges

$\Rightarrow$ At most k edge disj paths

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max # edge disj paths $\geq$ min # edges that disconnect s from t.

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max flow

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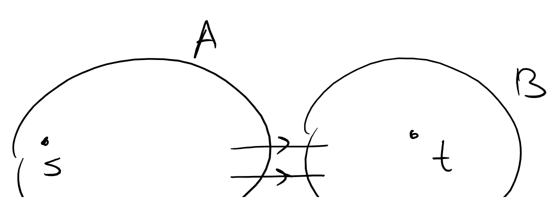
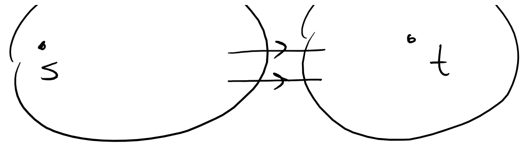
min s-t cut



min s-t cut



$$\text{cap}(A,B) = \sum_{e \text{ out of } A} c(e) = \# \text{ edges from } A \to B$$

If I remove all edges from $A \to B$ there is no more path from $s \to t$. So s is disconnected from t.

max # edge disj paths $= \text{cap}(A,B) \geq$ min # edges that disconnect s from t