Max flow uniqueness

Max flow reduction

Max flow $\geq$ # edge disj path

Max flow $\leq$ # edge disj paths

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

every path from $s$ to $t$ uses at least one of these 1c edges

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

max flow $\leq$ min $s$-$t$ cut
\[ \min s \cdot 1 \text{ max edge} = \text{cap}(A, B) > \min \text{ all edges that disconnect } s \text{ from } t \]

If I remove all edges from \( A \rightarrow B \) then is no more path from \( s \rightarrow t \). So \( s \) is disconnected from \( t \).