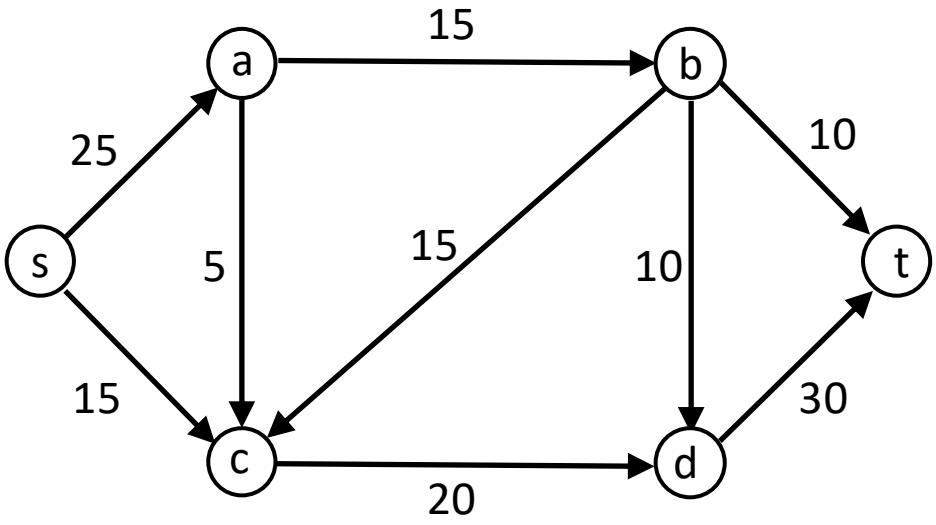
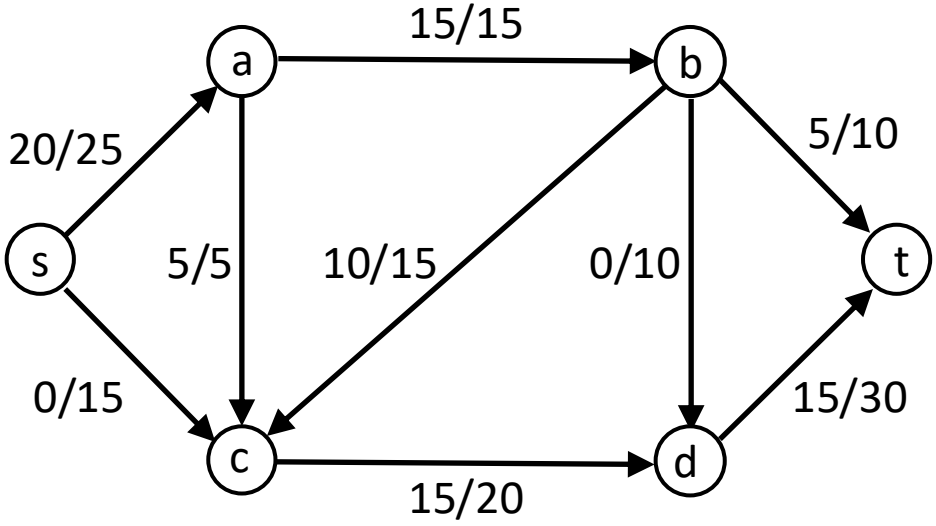
Quick review

A flow network $\mathcal{F}$

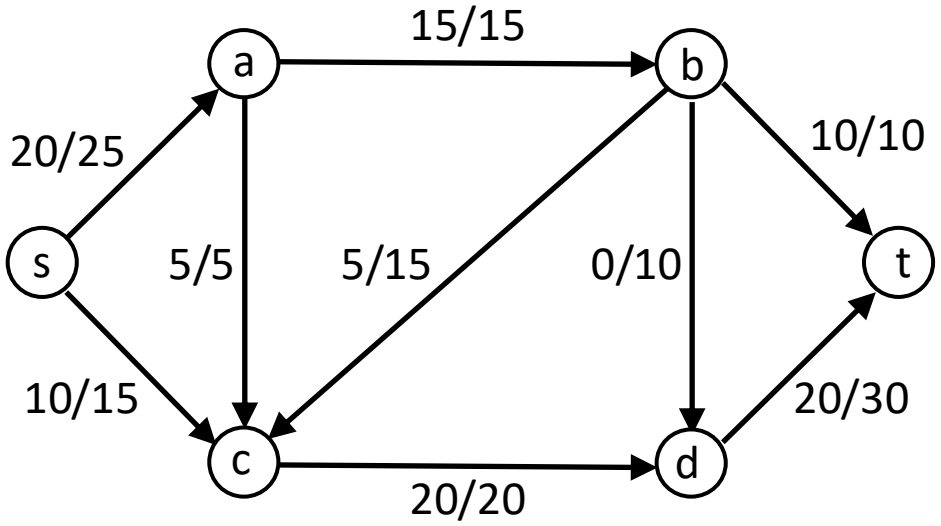


A flow f in the network $\mathcal{F}$

$V(f) = 20$

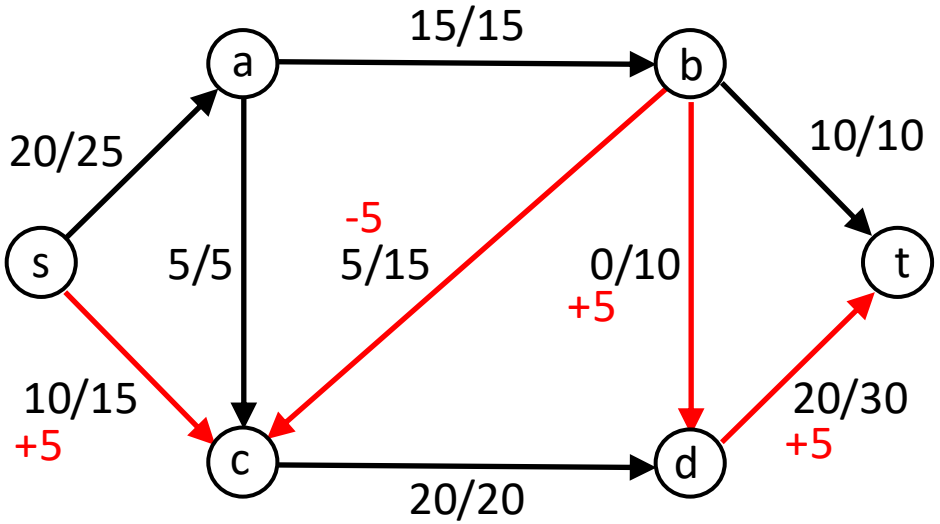


flow f''
$\mathcal{V}(f'') = 30$



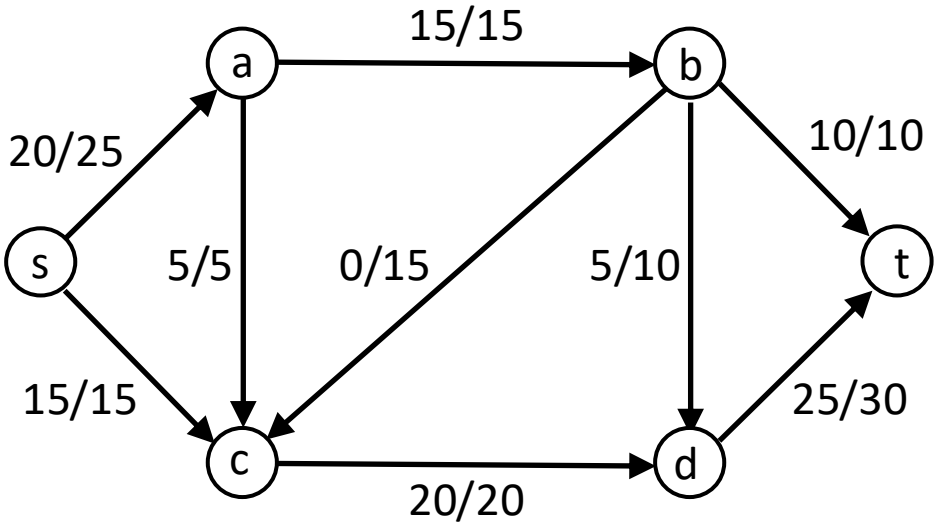
flow f''

$\mathcal{V}(f'') = 30$



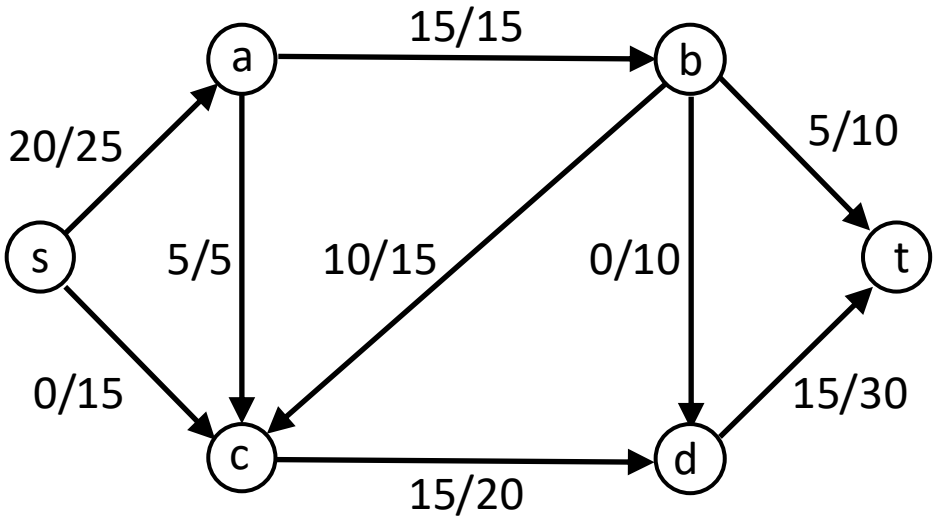
flow f'''

$\mathcal{V}(f''') = 35$

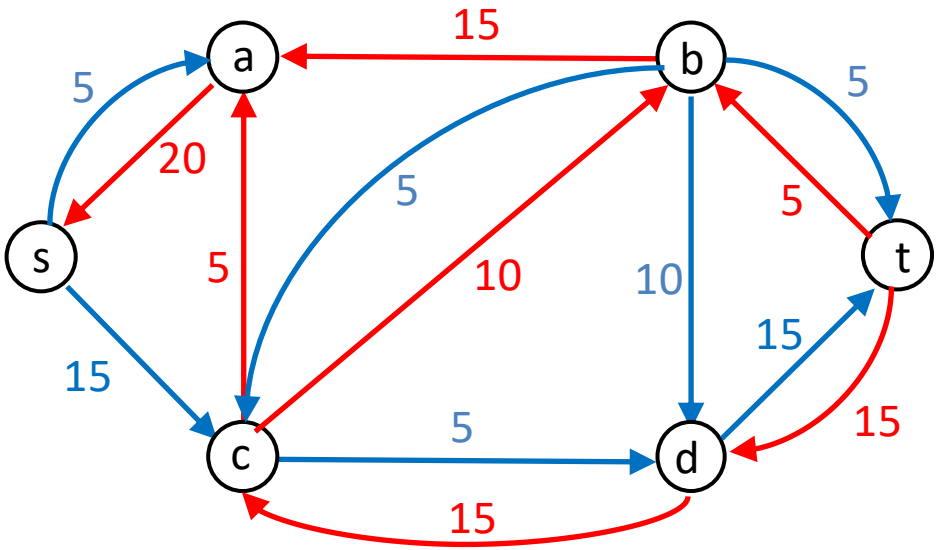


Residual graph of flow in a network

a flow f in network $\mathcal{F}$

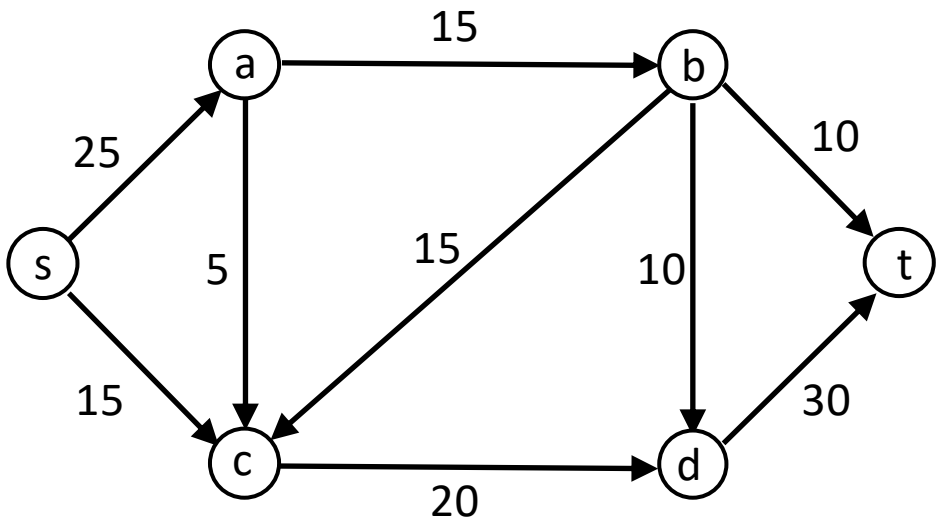


the residual graph $\mathcal{F}_f$

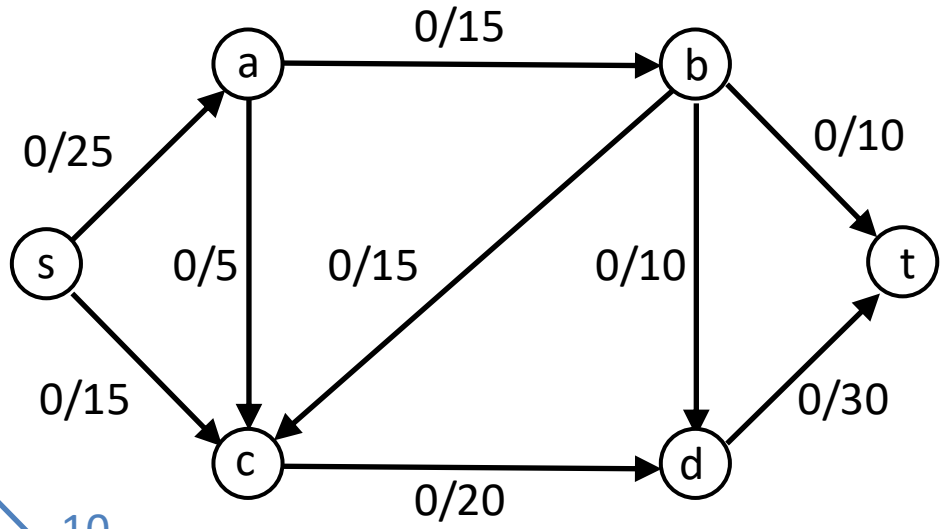


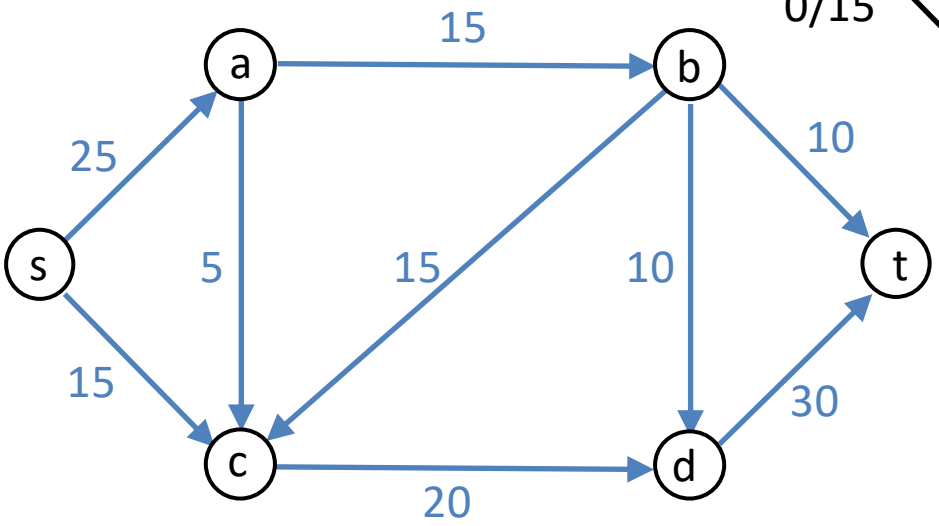
Example of Ford-Fulkerson max flow algorithm

our input
flow network $\mathcal{F}$

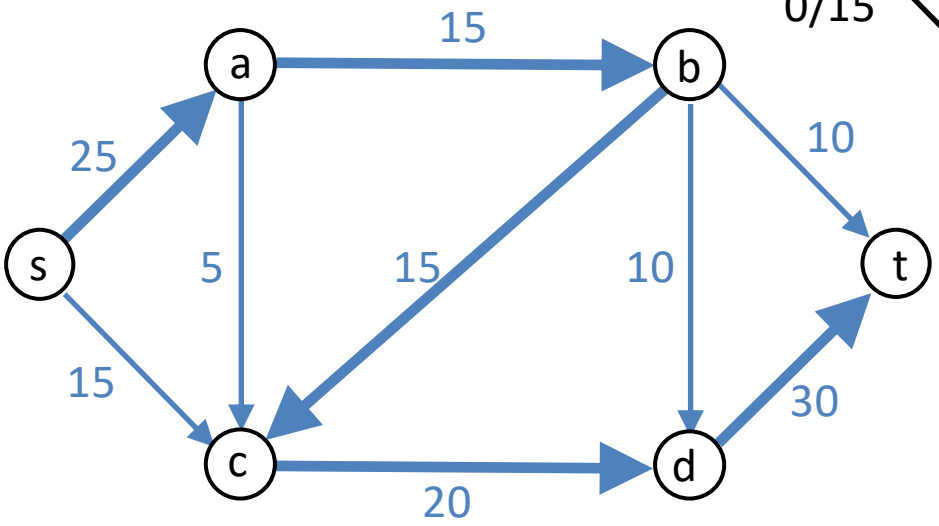


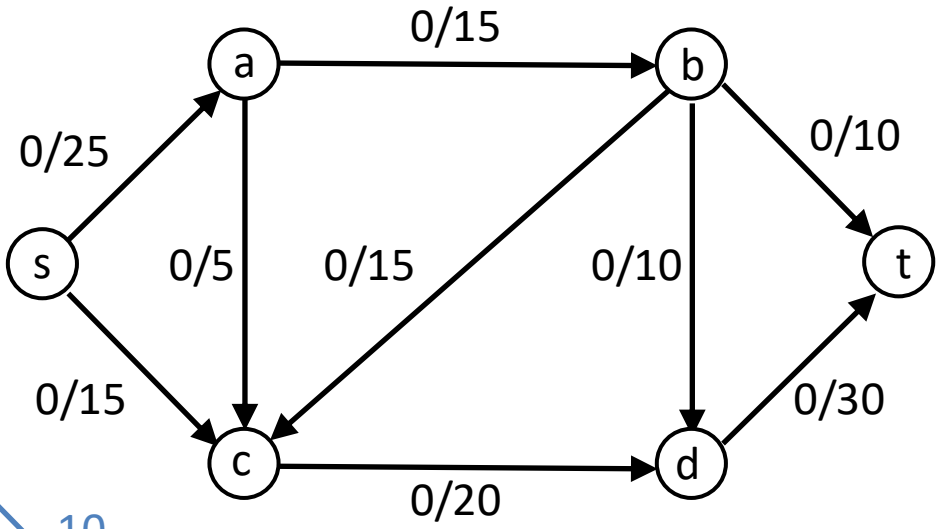
The trivial flow in $\mathcal{F}$





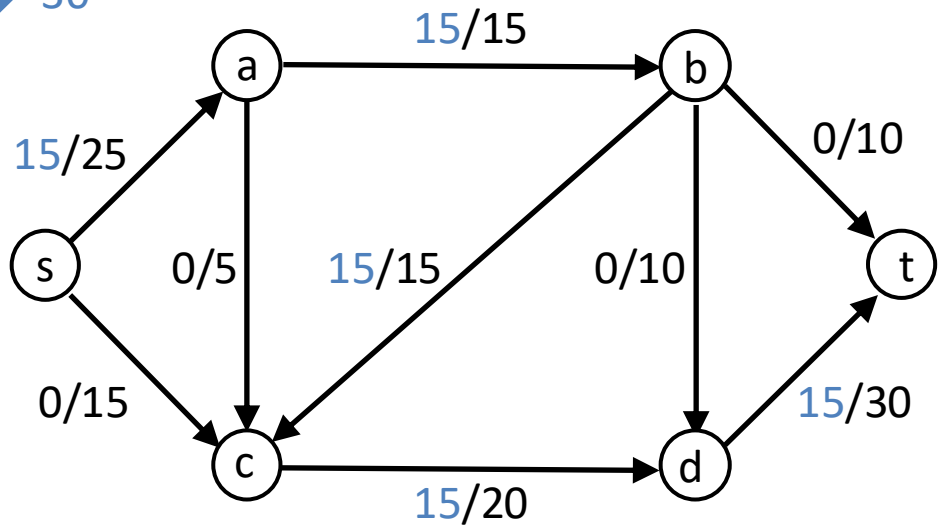
The residual graph



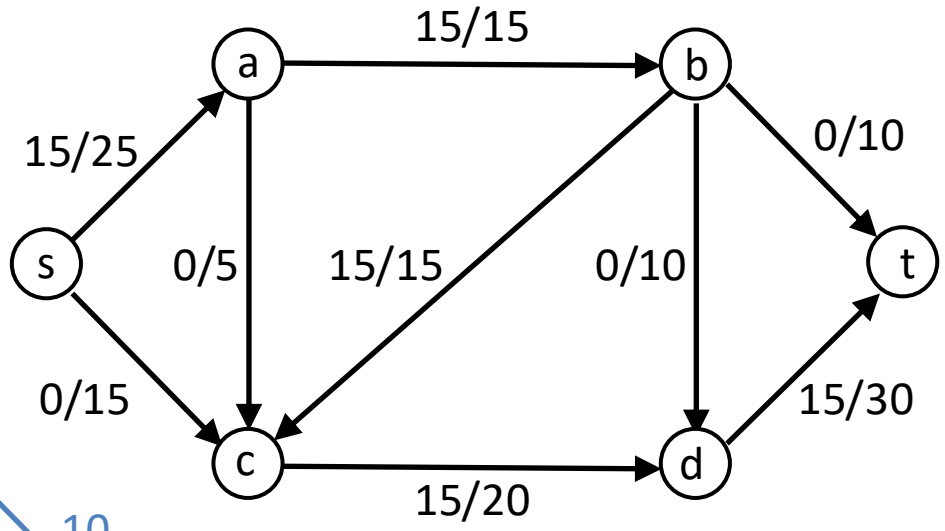


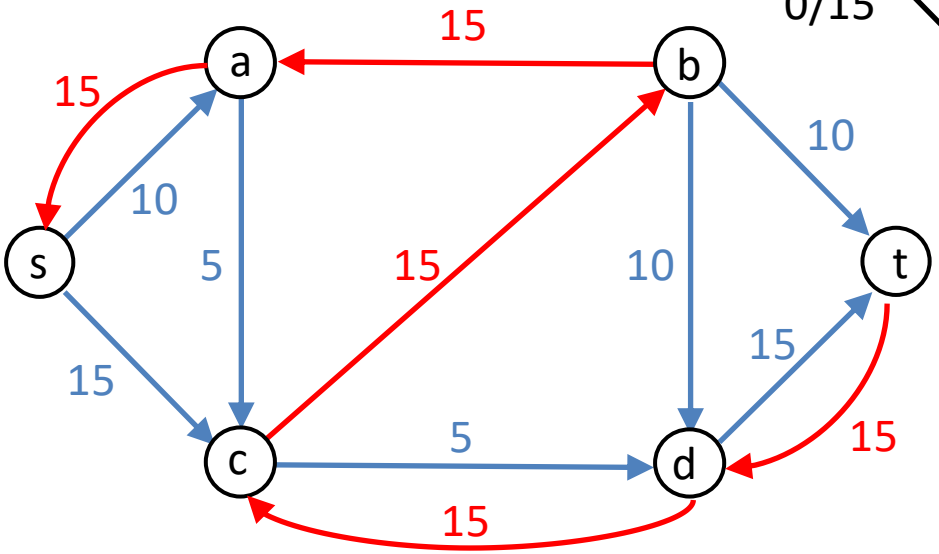
$b = 15$

augmented flow
along the path shown

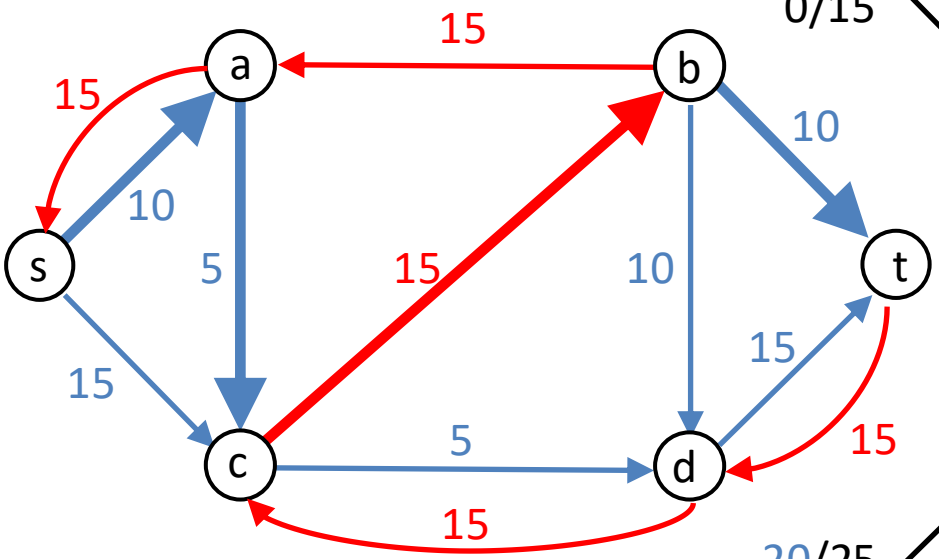


The new flow

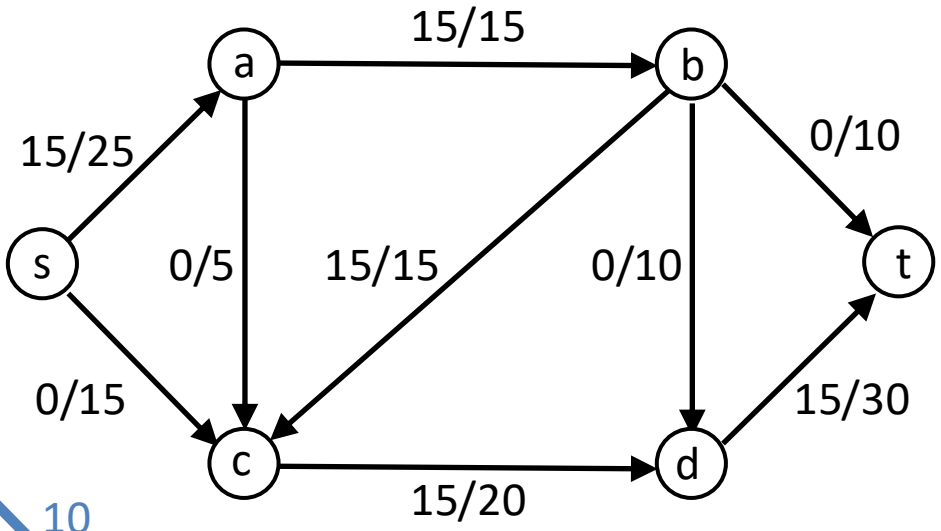




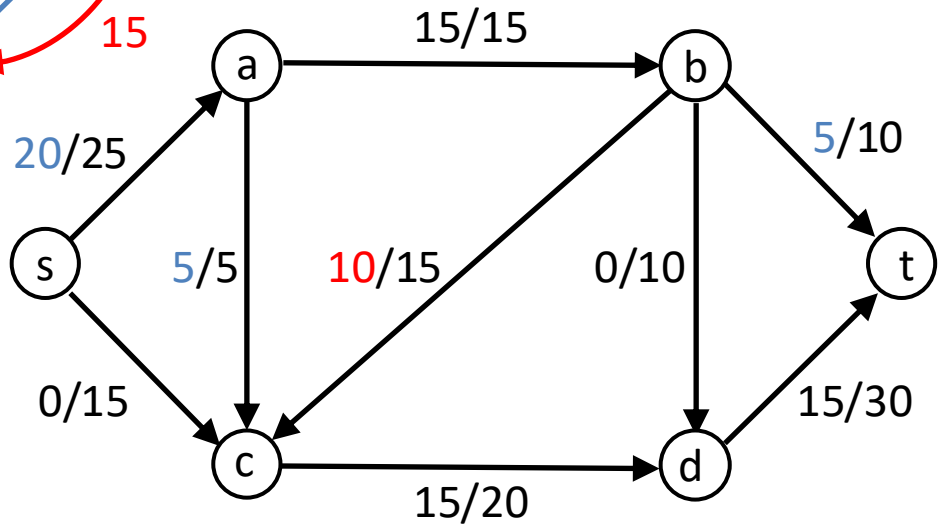
The residual graph



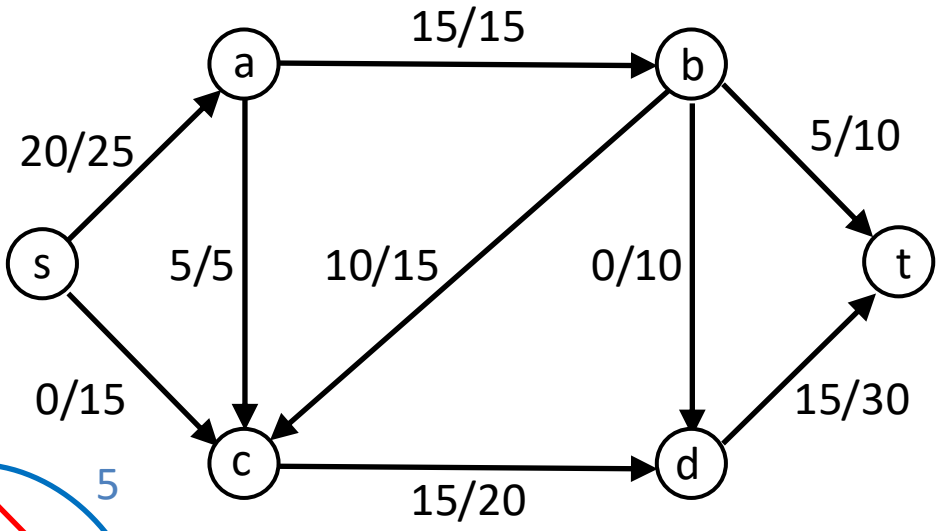
augmented flow
along the path shown

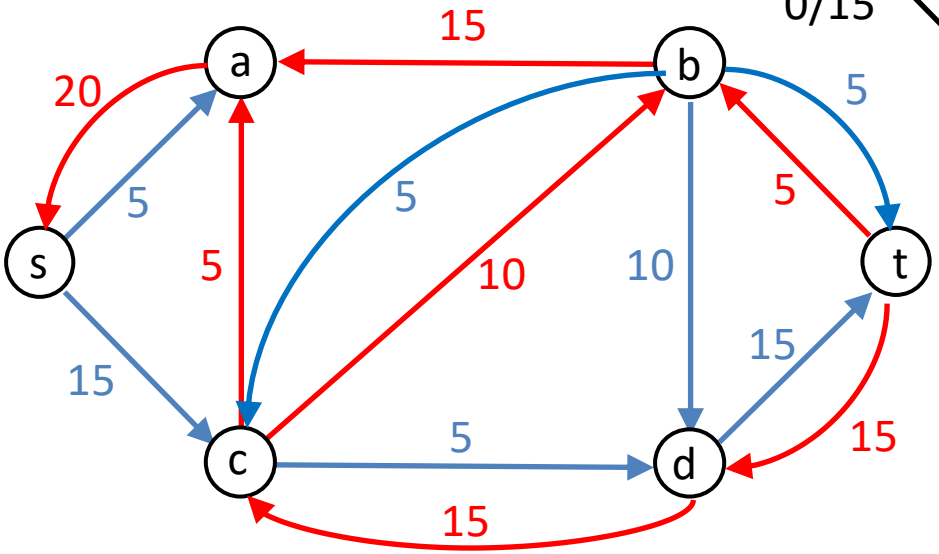


$b = 5$

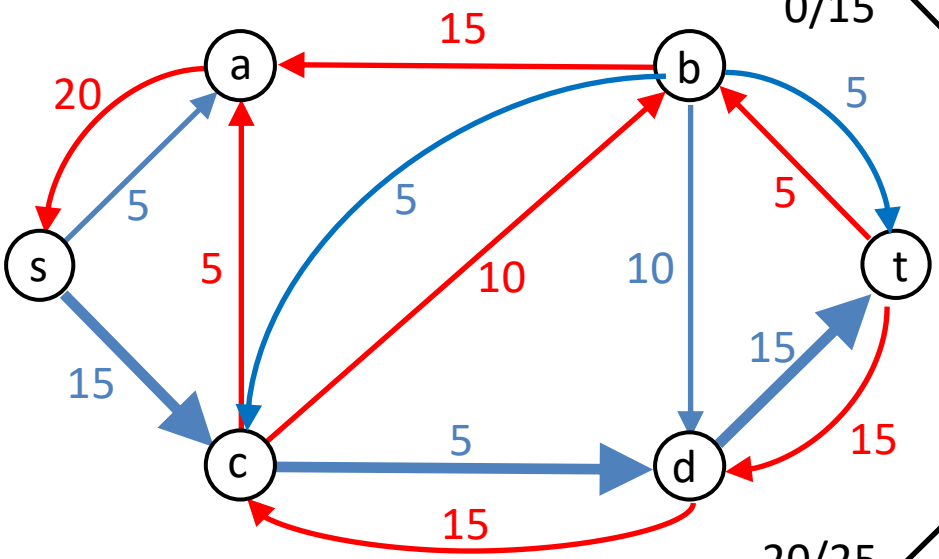


The new flow

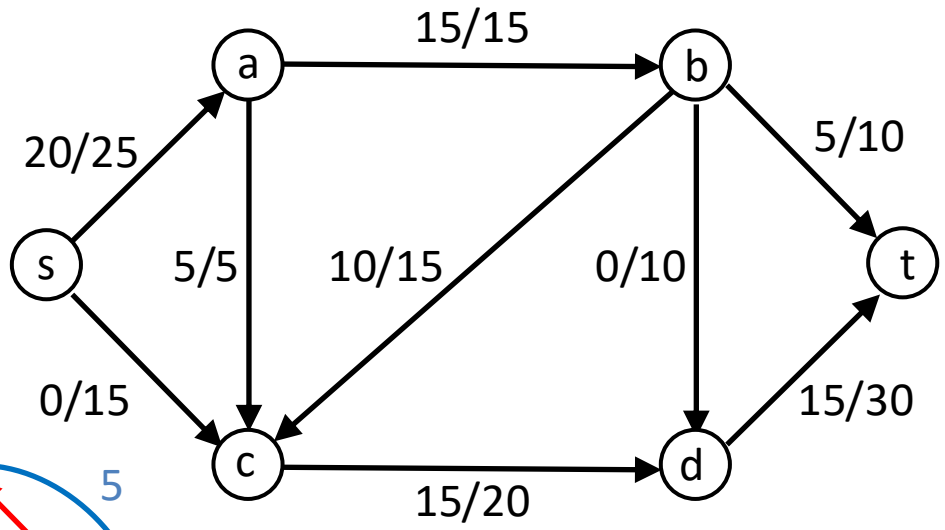




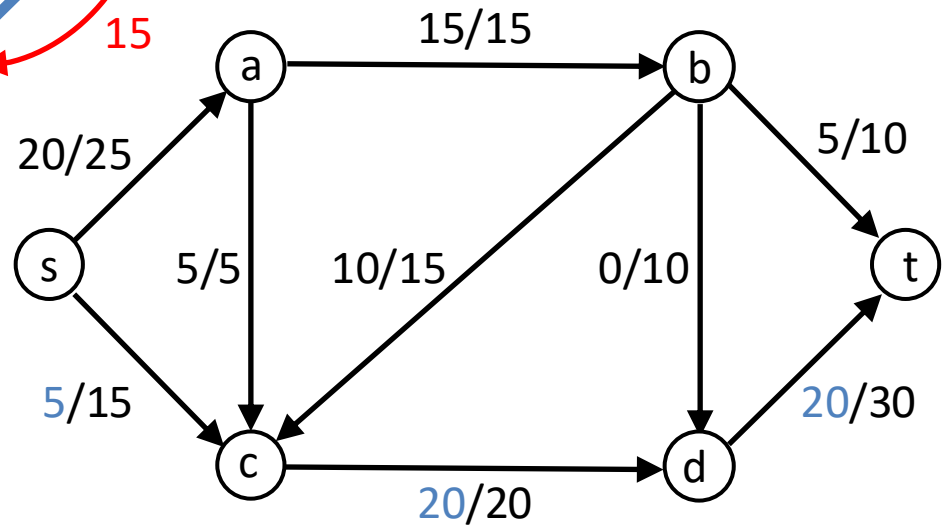
The residual graph



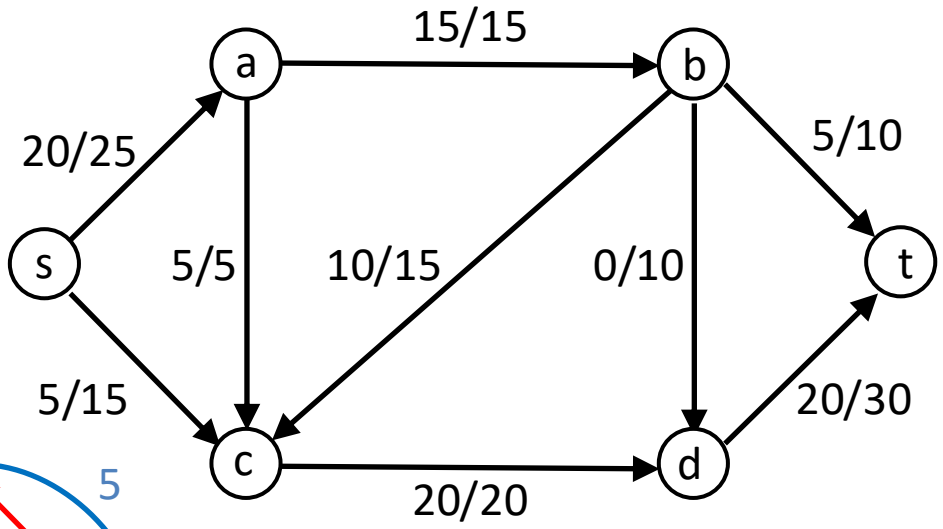
augmented flow
along the path shown

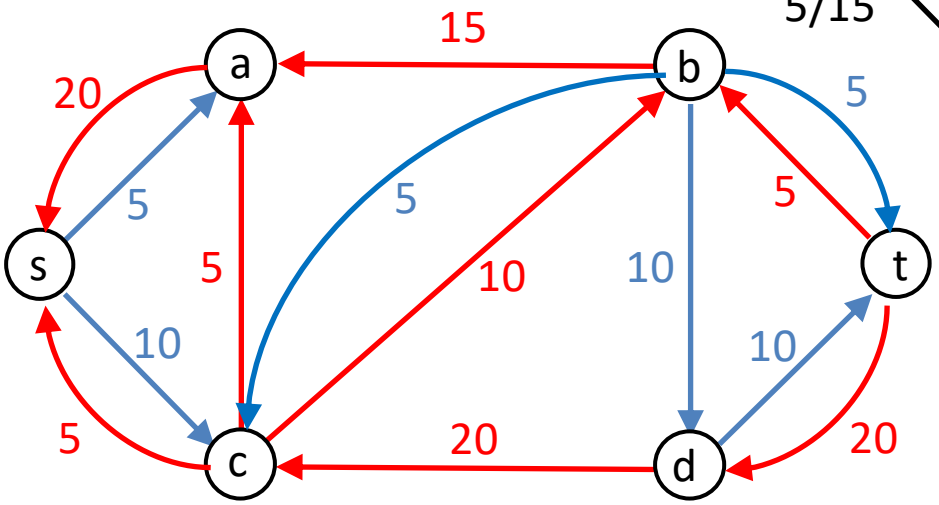


$b = 5$

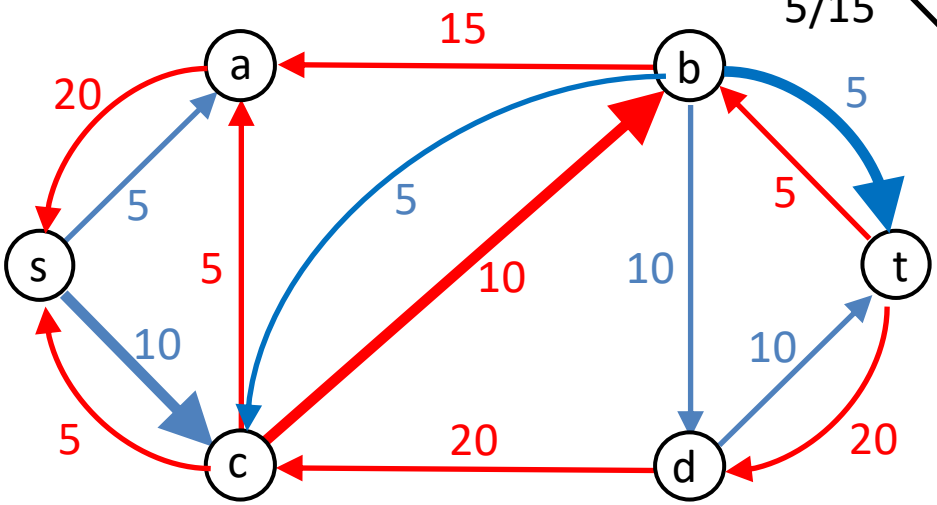


The new flow



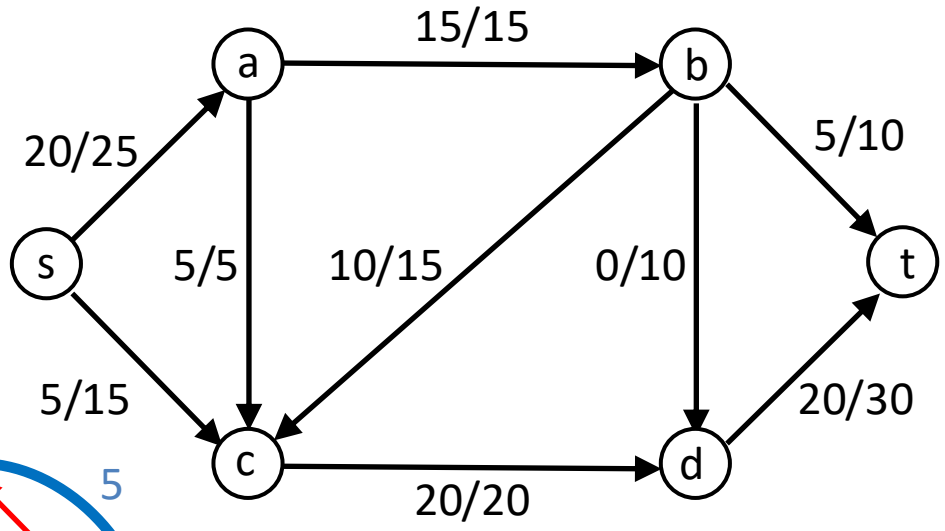


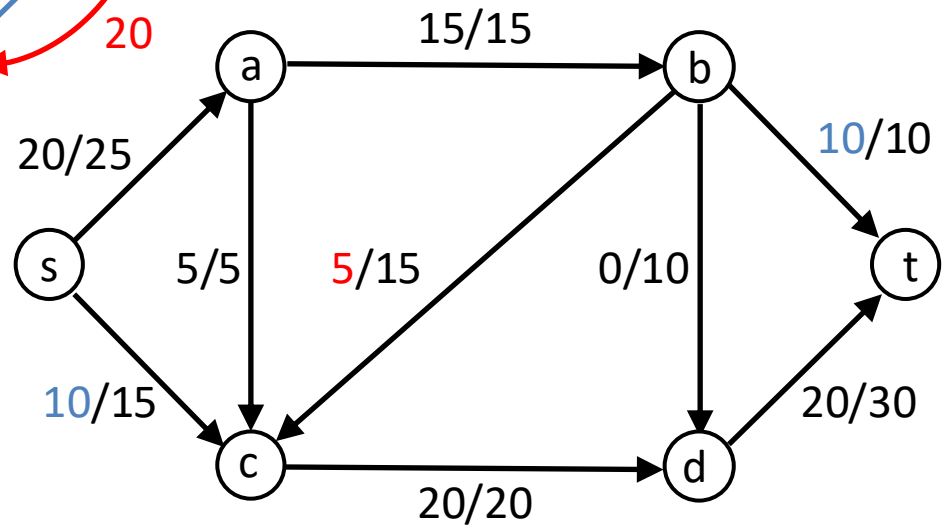
The residual graph



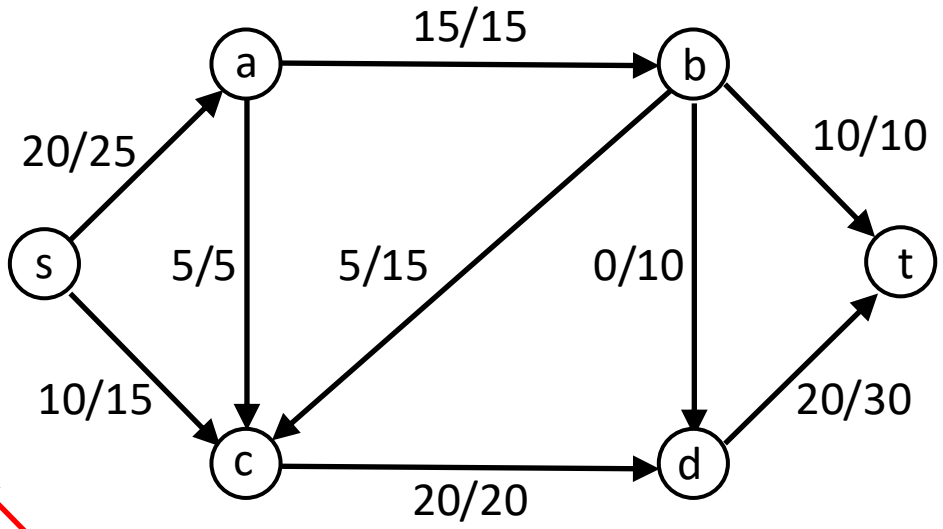
$b = 5$

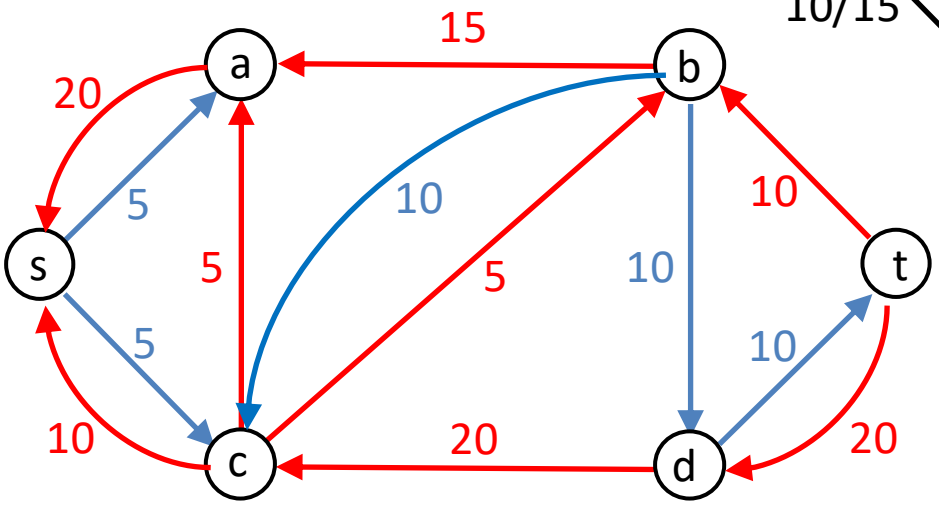
augmented flow
along the path shown



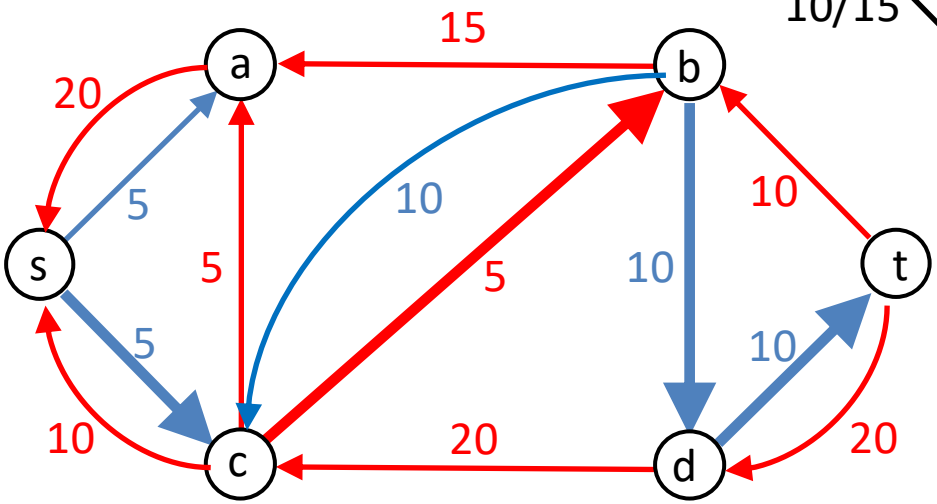


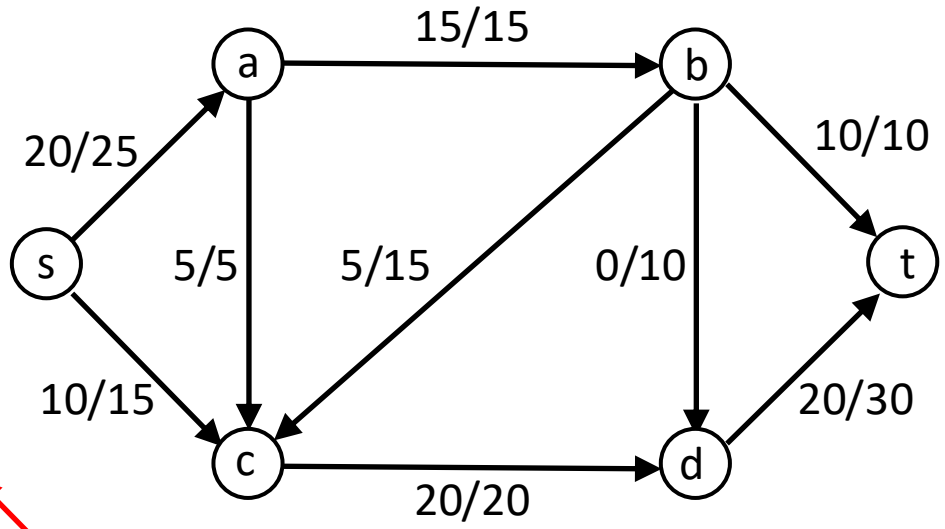
The new flow





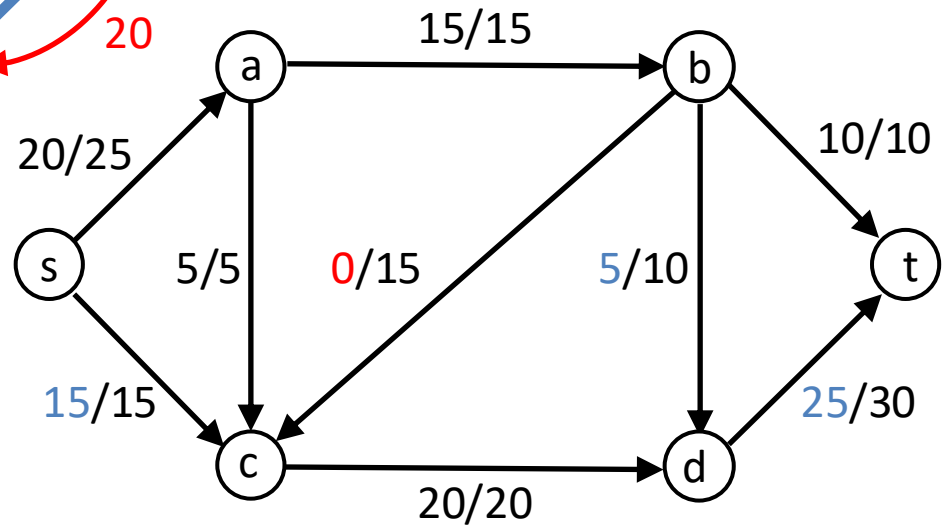
The residual graph



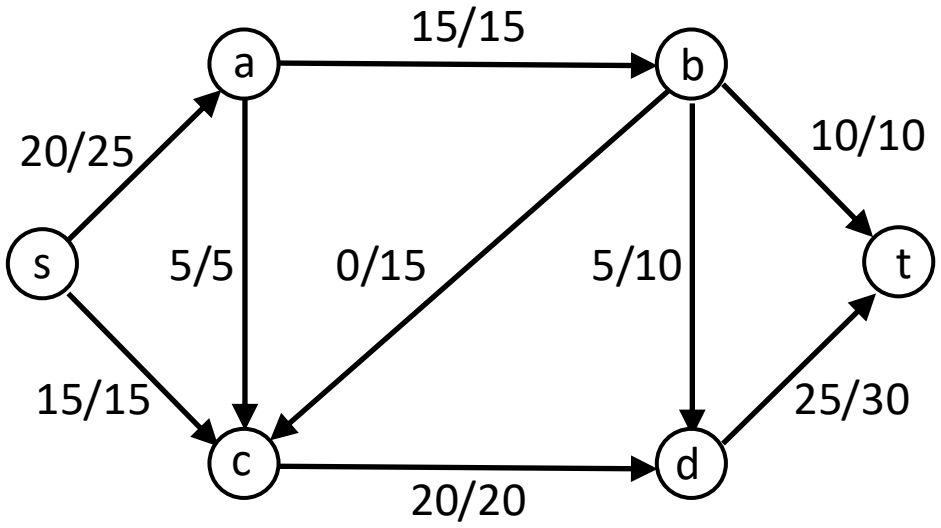


$b = 5$

augmented flow
along the path shown

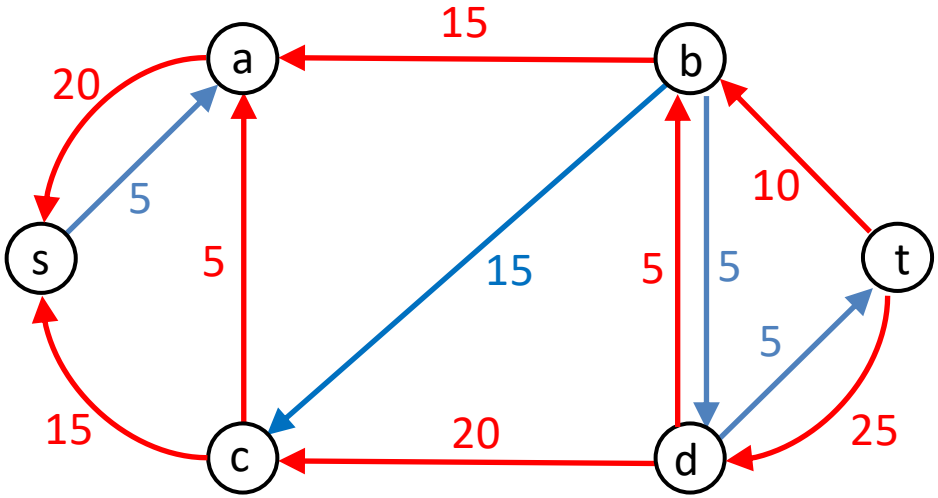


The new flow



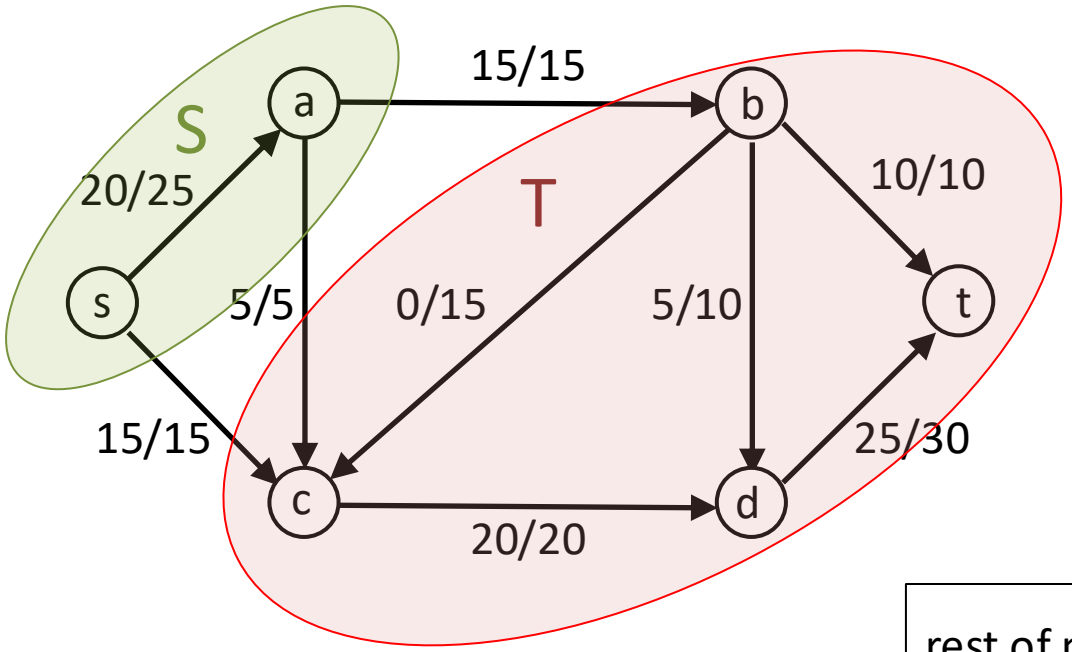
The residual graph

no $s \to t$ path
$\Longrightarrow$ above flow is max



value of flow = 35

capacity of cut = 35



set of nodes reachable from s in residual graph

rest of nodes

