

This is false. Consider a graph with nodes  $s, v, w, t$ , edges  $(s, v), (v, w), (w, t)$ , capacities of 2 on  $(s, v)$  and  $(w, t)$ , and a capacity of 1 on  $(v, w)$ . Then the maximum flow has value 1, and does not saturate the edge out of  $s$ .