

Algorithm Design
M. T. Goodrich and R. Tamassia
John Wiley & Sons
Solution of Exercise R-8.2

The forward edges in π are (s, v_2) , (v_2, v_3) , (v_1, v_4) , and (v_4, t) . The backward edge is (v_1, v_3) . We can form augmenting paths different from π by replacing (s, v_2, v_3) with (s, v_3) , by replacing (v_3, v_1, v_4) with (v_3, v_4) , or by replacing (v_3, v_1, v_4, t) with (v_3, t) , but these last two substitutions conflict with each other. Thus, there are $2 \cdot 3 = 6$ possible augmenting paths. The maximum flow starts with the flow of the (b)-figure and adds one unit of flow along (s, v_3, t) and one additional unit of flow along (s, v_2, v_3, v_4, t) . At this point, there are no augmenting paths left. Therefore, the maximum flow has value 14.