Assume we have three men m_1 to m_3 and three women w_1 to w_3 with preferences as given in the table below. Column w_3 shows true preferences of woman w_3, while in column w_3' she pretends she prefers man m_3 to m_1.

m_1	m_2	m_3	w_1	w_2	w_3	(w_3')
w_3	w_1	w_3	m_1	m_1	m_2	m_2
w_1	w_3	w_1	m_2	m_2	m_1	m_3
w_2	w_2	w_2	m_3	m_3	m_3	m_1

First let us consider one possible execution of the G-S algorithm with the true preference list of w_3.

m_1	w_3			w_3
m_2		w_1		w_1
m_3			$[w_3][w_1]w_2$	w_2

First m_1 proposes to w_3, then m_2 proposes to w_1. Then m_3 proposes to w_2 and w_1 and gets rejected, finally proposes to w_2 and is accepted. This execution forms pairs (m_1, w_3), (m_2, w_1) and (m_3, w_2), thus pairing w_3 with m_1, who is her second choice.

Now consider execution of the G-S algorithm when w_3 pretends she prefers m_3 to m_1 (see column w_3'). Then the execution might look as follows:

m_1	w_3		$-$	w_1			w_1
m_2		w_1		$-$	w_3		w_3
m_3			w_3		$-$	$[w_1]w_2$	w_2

Man m_1 proposes to w_3, m_2 to w_1, then m_3 to w_3. She accepts the proposal, leaving m_1 alone. Then m_1 proposes to w_1 which causes w_1 to leave her current partner m_2, who consequently proposes to w_3 (and that is exactly what w_3 wants). Finally, the algorithm pairs up m_3 (recently left by w_3) and w_2. As we see, w_3 ends up with the man m_2, who is her true favorite. Thus we conclude that by falsely switching order of her preferences, a woman may be able to get a more desirable partner in the G-S algorithm.

[1] ex562.302.864