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Decide whether the following statement is true or false. If it is true, give a short proof. If it is false, give a counter example.

*Consider an instance of the Stable Marriage problem in which there exists a man  $m$  and a woman  $w$  such that  $m$  is ranked first on the preference list of  $w$  and  $w$  is ranked first on the preference list of  $m$ . Then in every stable matching  $S$  for this instance, the pair  $(m, w)$  belongs to  $S$ .*