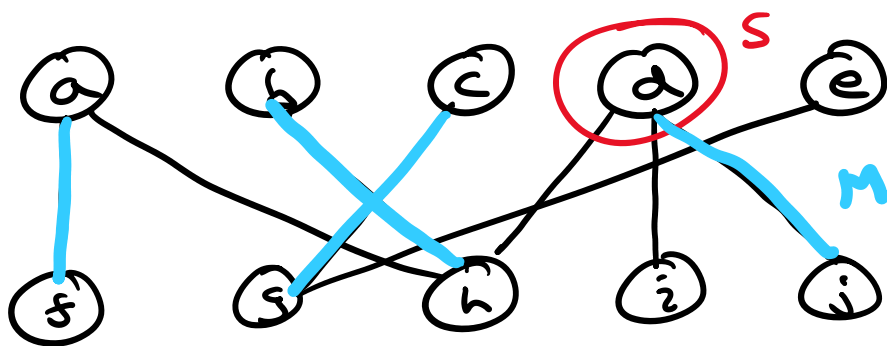


$|S| > |N(S)|$ so no X-saturating match via Hall. So max match of $|M| = 3 = |X| - 1$ is maximum



$O(G-S) = 3 > |S| = 1$ so no P.M. via Tutte. So match $|M| = 4 < \frac{|V(G)|}{2}$ is maximum

Note: can also use Hall

② We want to show that via the Gale-Shapley Algorithm, no man x is ever rejected by all women.

Note: women will only reject when they have multiple matches

... .. has at

Note 2: once a woman has at least 1 match, they will always have at least one match

→ In order for x to be rejected n times, this implies that there must be at least one match for all n women to $(n-1)$ possible men, a

contradiction

⇒ so no man can be rejected n times, or by all women \square