

Revision: - Stable Matching,  
- Blocking pair definition.

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Assume: strict ordering (no ties)

$|A| = |B|$ , complete bipartite graph.

- Proposal based algorithm to compute a stable matching:  $O(m)$  running time
- For any instance, at least one stable matching exists.

If  $a_i$  &  $b_j$  both treat each other as top choice, then  $(a_i, b_j)$  is matched in every stable  $M$ .

~~#~~ Strict, incomplete list,  $|A| = |B|$  % Same result holds  $\equiv O(m)$  algo to compute a S.M. & at least 1 S.M. exists.

# Once A or B side is fixed, order of proposals doesn't matter. It computes same S.M. irrespective of order.

If  $A = \text{men}$ , it is man-optimal S.M.

Claim:  $M_1, M_2$ : 2 S.M. &  $X_i$  = set of vertices matched in  $M_i$ . Then,  $[X_1] = [X_2]$  i.e.