

Aug 31

# Stable Matching / Marriage

n women  
n men

$W = \{w_1, \dots, w_n\}$   
 $M = \{m_1, \dots, m_n\}$

$n=2$

$W = \{JA, AJ\}$   
 $M = \{BP, BBT\}$

Def (Matching) A subset  $S \subseteq M \times W \stackrel{\text{def}}{=} \{(m,w) \mid m \in M, w \in W\}$  is a matching IF

- ①  $\forall w \in W, \exists$  at most one  $m \in M$  s.t.  $(m,w) \in S$
- ②  $\forall m \in M, \exists$  at least  $w \in W$

Perfect matching:  $\uparrow$  at least gets replaced by EXACTLY

