

✓Q1) How do we specify preferences?

- Preference lists

✓Q2) Ratio of applicants vs. Employers / men vs. women?
- $1:1$ $\frac{n \text{ applicants / men}}{n \text{ Employers / women}}$

✓Q3) Define assignment?

✓Q4) Can an employer have ~~at~~ > 1 employee?
- no

✓Q5) Can an employee have more than 1 employer?
- no (no polygamy)

✓Q6) How many employees/employers per preference list? All of them (n)

✓Q7) Does every employer have ≥ 1 employee?
- yes

✓Q8) Does every employee have ≥ 1 employer?
- yes

An assignment is a matching

which is a set $S \subseteq M \times W$

where $M = \{m_1, m_2, \dots, m_n\}$ is the set of men
 $W = \{w_1, w_2, \dots, w_n\}$ is the set of women

and $\forall m \in M \exists \leq 1 w \in W$ s.t. $(m, w) \in S$

and $\forall w \in W \exists \leq 1 m \in M$ s.t. $(m, w) \in S$

~~ex. n=2~~

Define Perfect matching: S is a matching
and $|S| = n$

Then S is a perfect matching
Everyone has exactly 1 spouse

Define Stable matching: is a perfect
matching with no instabilities.

Define instability: ~~\exists~~ $\exists (m, w) \notin S$

s.t. m prefers w over his current
spouse AND w prefers m over her current
spouse.