Stable matching/marriage problem

n men $M = \{ \omega m_1, .., m_n \}$

n women $W = \{ w_1, .., w_n \}$

$n = 2$

$W = \{ JA, AJ \}$

$M = \{ BP, BBT \}$

BP — JA

BBT — AJ

$M^\checkmark$, $p^\checkmark$

BP — JA

BBT — AJ

M^X p^X

BP   JA

BBT   AJ

M p^X (such that)
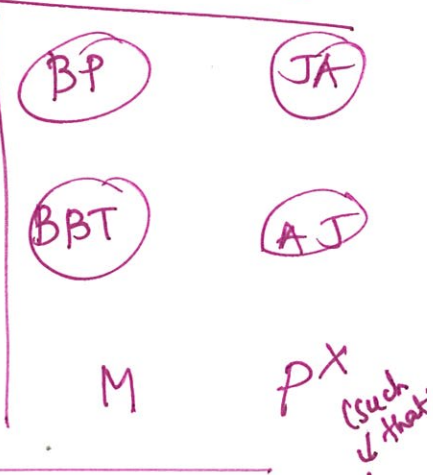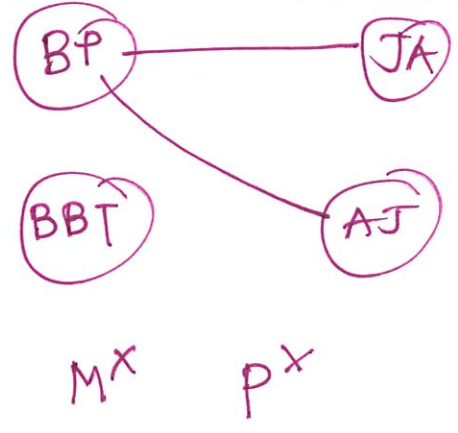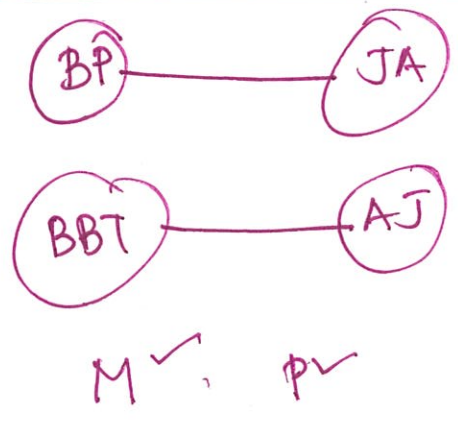
<u>Def</u> (Matching)   A   subset $S \subseteq M \times W = \{ (m,w) \mid$
                                            (subset) $m \in M$
                                                                        $w \in W \}$

is   a   <u>matching</u>   IF

(i) $\forall$ $w \in W$, $\exists$ at most one $m \in M$ s.t. (m,w)
(for all)   (there   (such that) $\in S$
                  exists)   (in)

(ii) $\forall m \in M$, _____ $w \in W$ _____

<u>Def</u> (perfect matching)   EXACTLY one