1a. Rouge Couple: (man 0, woman 2)

(man 0, woman 1)

(man 2, woman 3)

(man 2, woman 2)

(man 3, woman 1)

1b.

|  |  |  |
| --- | --- | --- |
| Man | Proposes to woman | Her |
| 0 | 3 | Accepts |
| 1 | 1 | Accepts |
| 2 | 3 | Accepts dumps 0 |
| 0 | 1 | Accepts dumps 1 |
| 1 | 3 | Rejects |
| 1 | 2 | Accepts |
| 3 | 1 | Accepts dumps 0 |
| 0 | 2 | Accepts dumps 1 |
| 1 | 0 | Accepts |

2a. When running the algorithm there is n free men and then each free man proposes to there favorite woman. The number of free man cannot exceed n because everyman has to have proposed at least once.

2b. Proof by contradiction

Assume that woman w is not paired with her favorite man and man m is paired with his favorite woman and is stable. Even though man m is paired with his favorite woman, woman w is not and will create unstable couples.