# The Mating Algorithm (TMA)

**Initial Condition:** Each of the $N$ boys has an ordered list of the $N$ girls according to his preferences. Each of the girls has an ordered list of the boys according to her preferences.

**Each Day:**

- Morning:

  - Each girl stands on her balcony
  - Each boy stands under the balcony of his favorite girl whom he has not yet crossed off his list and serenades. If there are no girls left on his list, he stays home and does 6.042 homework.

- Afternoon:

  - Girls who have at least one suitor say to their favorite from among the suitors that day: "Maybe, come back tomorrow."
  - To the others, they say "No, I will never marry you!"

- Evening:

  - Any boy who hears "No" crosses that girl off his list.

**Termination Condition:** If there is a day when every girl has at most one suitor, we stop and each girl marries her current suitor (if any).

6.042J / 18.062J Mathematics for Computer Science
Fall 2010