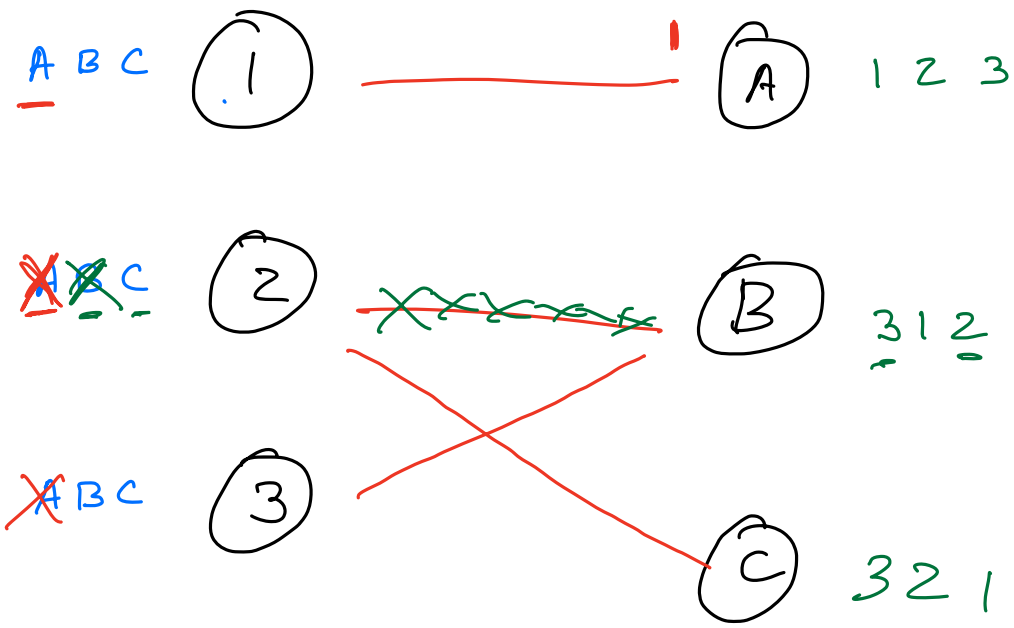
Stable matching → Marriage

2 sides to the market place



① Stability
- No (student, school) pair wants to abandon their existing partner for each other

② Strategy proof

Claim: ∃ algorithm called "Deferred Acceptance" that ✓ ① results in a stable matching
② strategy proof for "proposer" one side.
③ among stable matchings, the algorithm gives the one that is "best" for the same side for which it is strategy proof

Algorithm

Do the following until done:

Loop through students who are not "currently" matched:

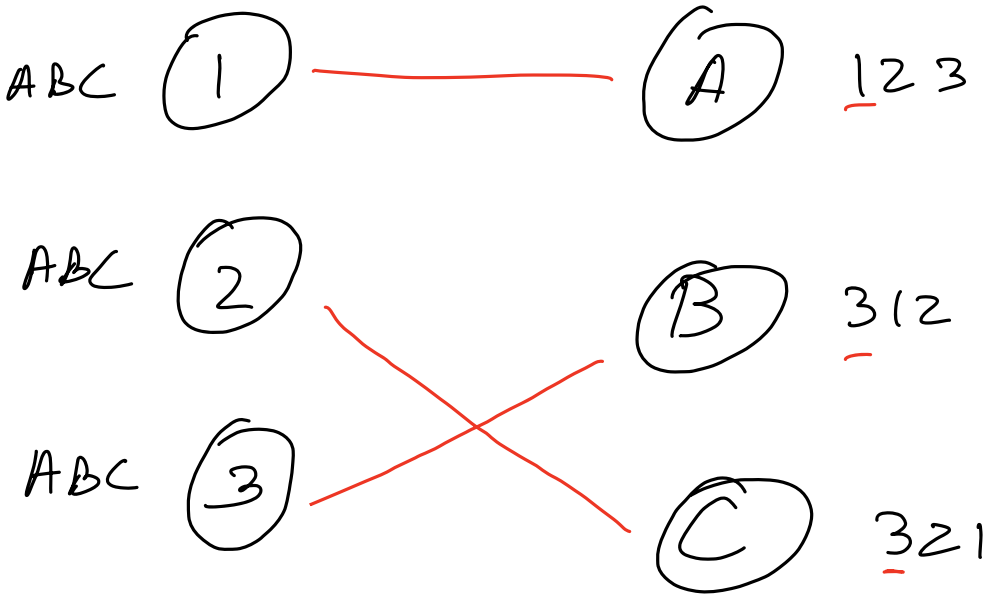
- Student applies to favorite school that has not rejected them yet.

School: if that student is "more-preferred" than school's "current match," then reject current

match and accept new students

else reject new applicant

Done condition:
- all students matched
- all non matched students have been rejected everywhere.



- Easier to apply as a couple

Impossible to separate the math from the politics

Can you "prioritize" rural hospitals?

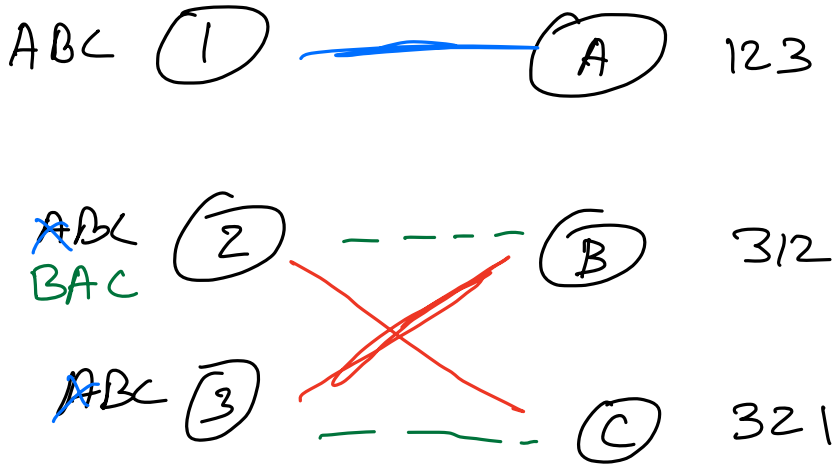
No. In every stable matching the same spots ("rural hospitals") are left unmatched.

① docks empirically rank rural hospitals low

② hospitals empirically rank immigrant docks low

did med school outside of US.

Boston Mechanism



(1) look at every student's favorite school
- give the students their favorite if its open

(2) look at everyone's 2nd favorite
- give it to them