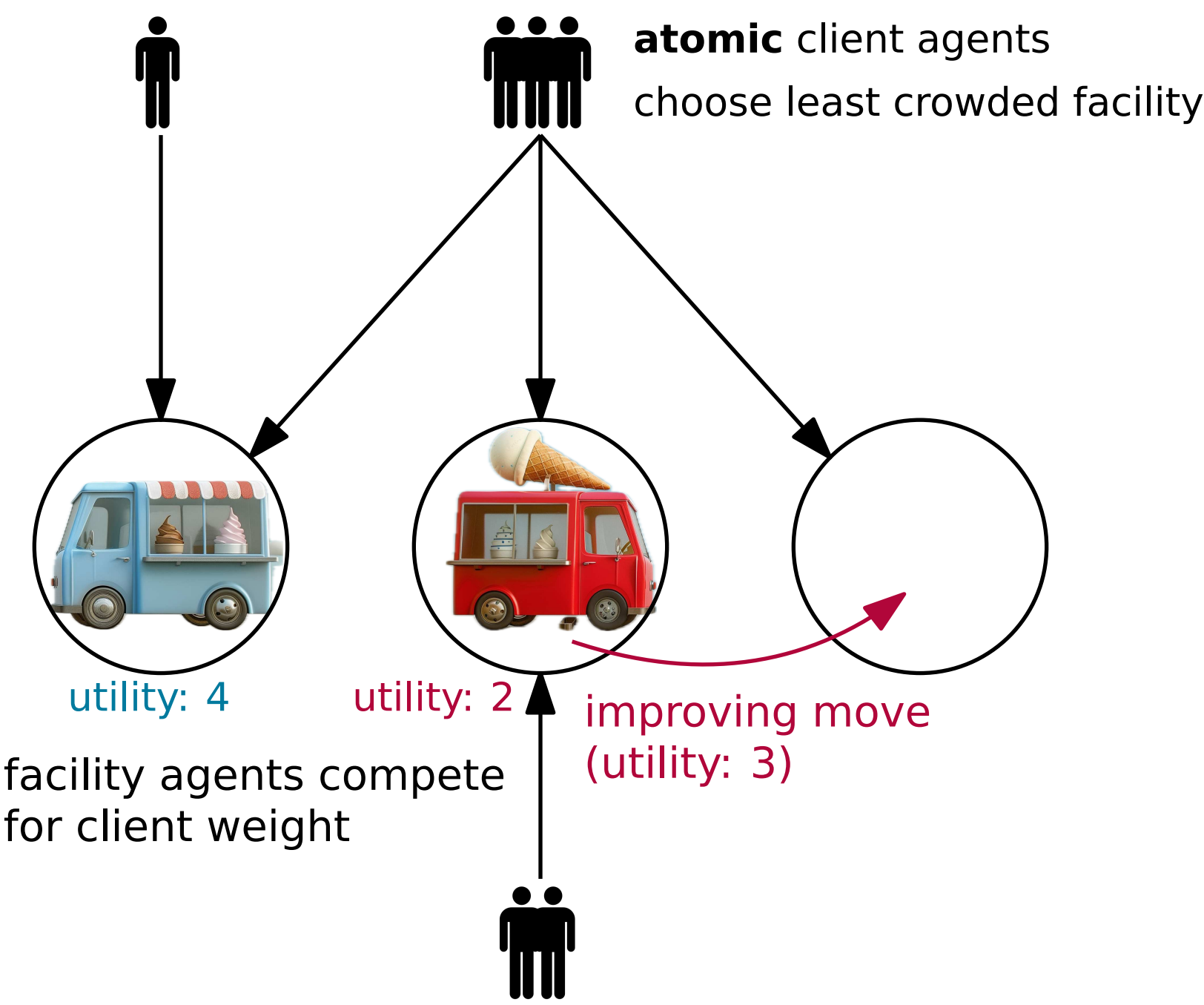


Equilibria in Two-Stage Facility Location with Atomic Clients

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the model

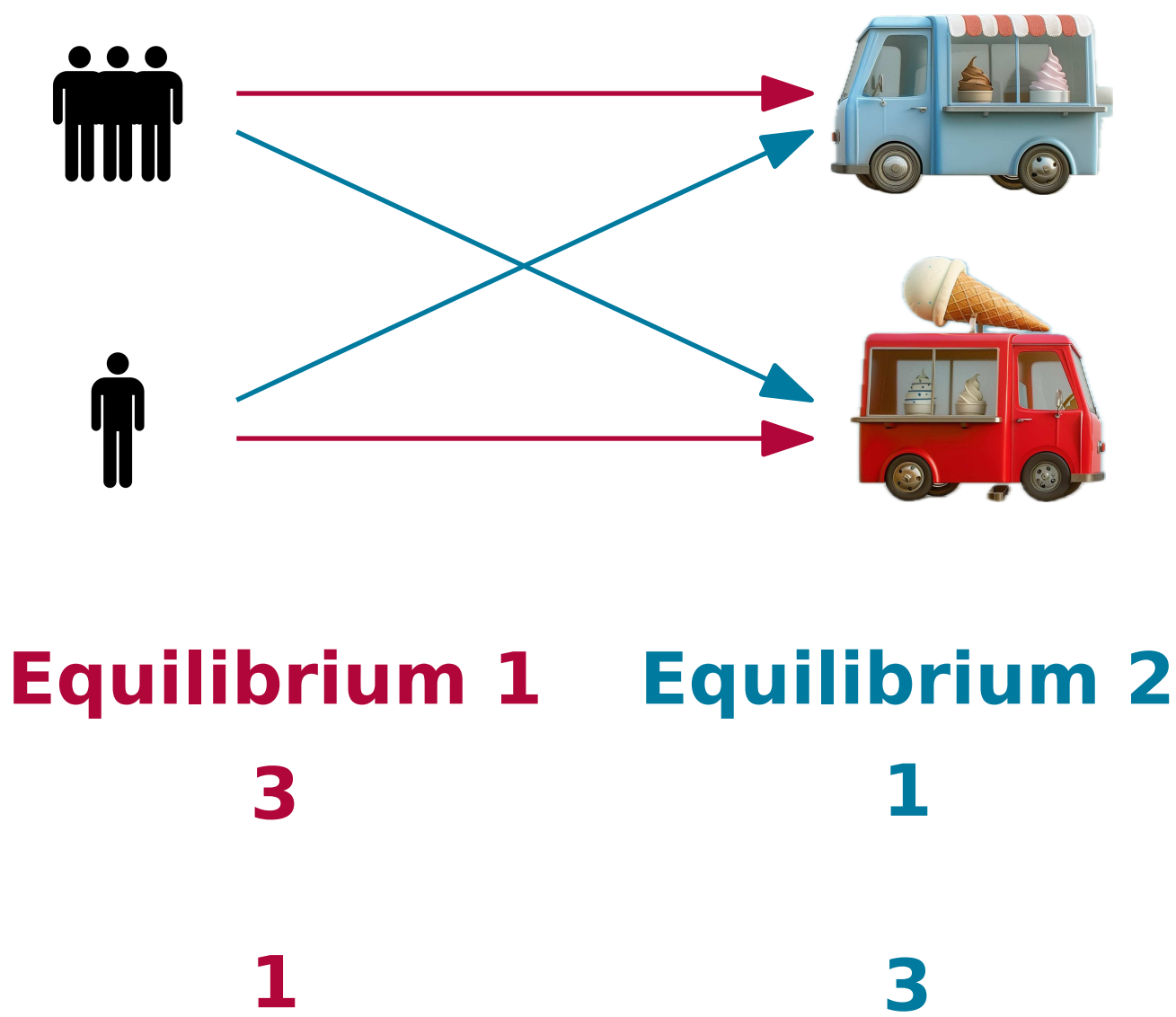


Two-stage process

1. facility agents select location for opening store
2. clients select store to visit

client equilibria

have non-unique facility loads



more results

- NP-complete to decide if ϕ -approximate subgame perfect equilibria exist (ϕ = golden ratio)
- tight bound of 2 on price of anarchy

open questions

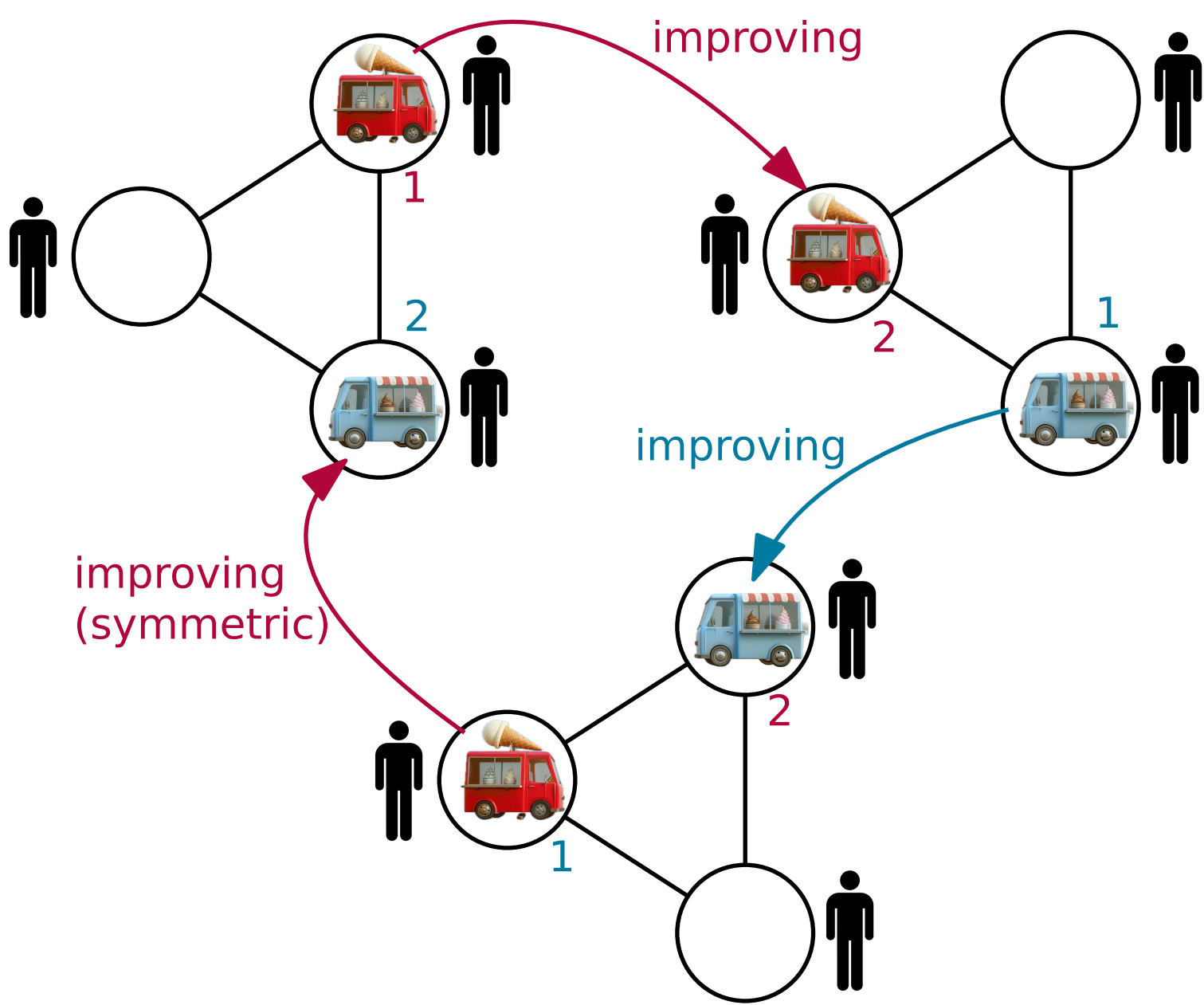
- convergence time to subgame perfect equilibrium?
- upper bound for existence of approximate subgame perfect equilibria?

arxiv:



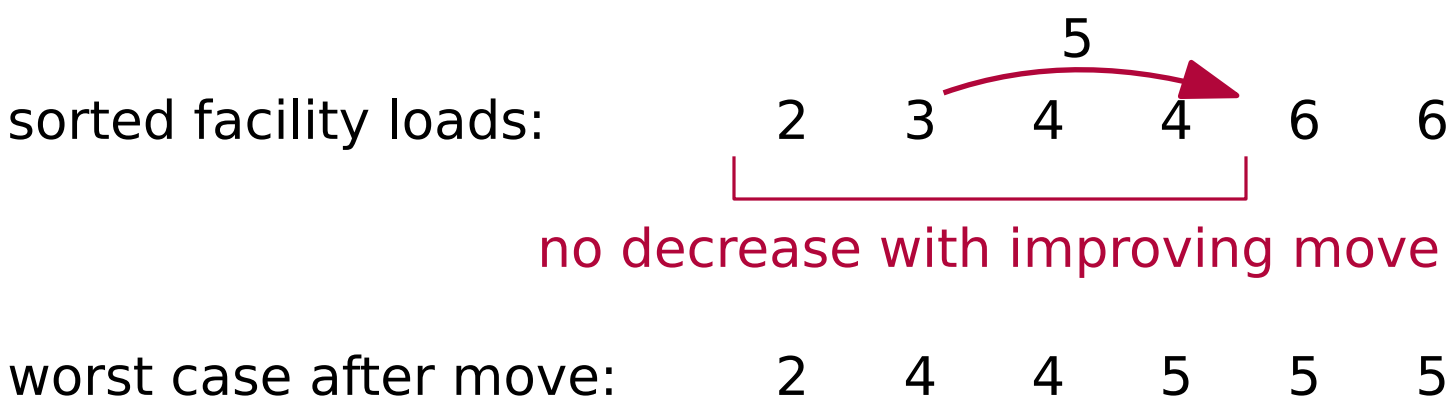
client sabotage

facility equilibria not possible with some client equilibria

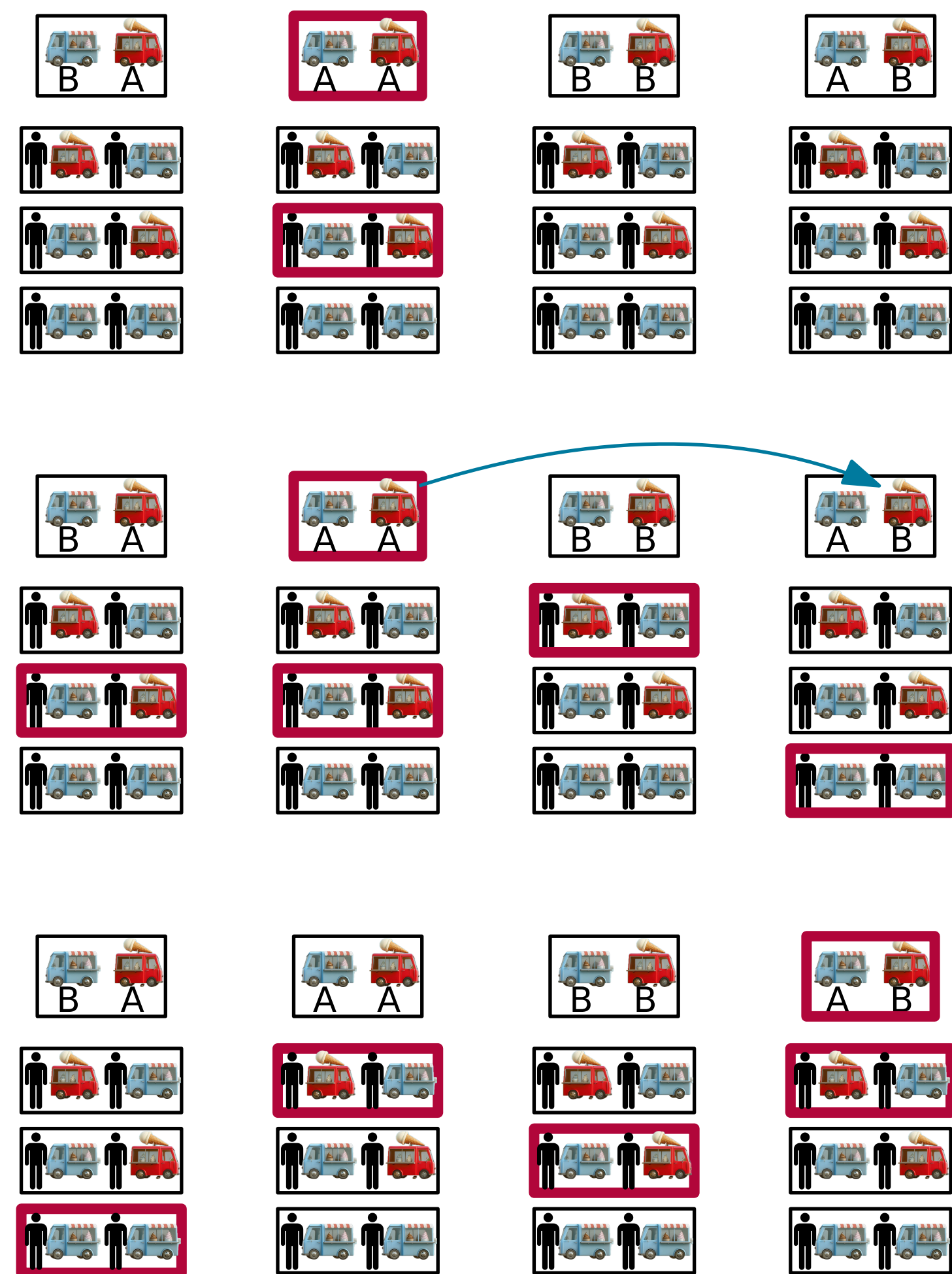


subgame perfect equilibria

for **unweighted clients** via a 2-stage potential function
→ sorted vector of facility loads



Example: Instance with locations A and B and two clients



We believe this can be applied to other 2-stage games!