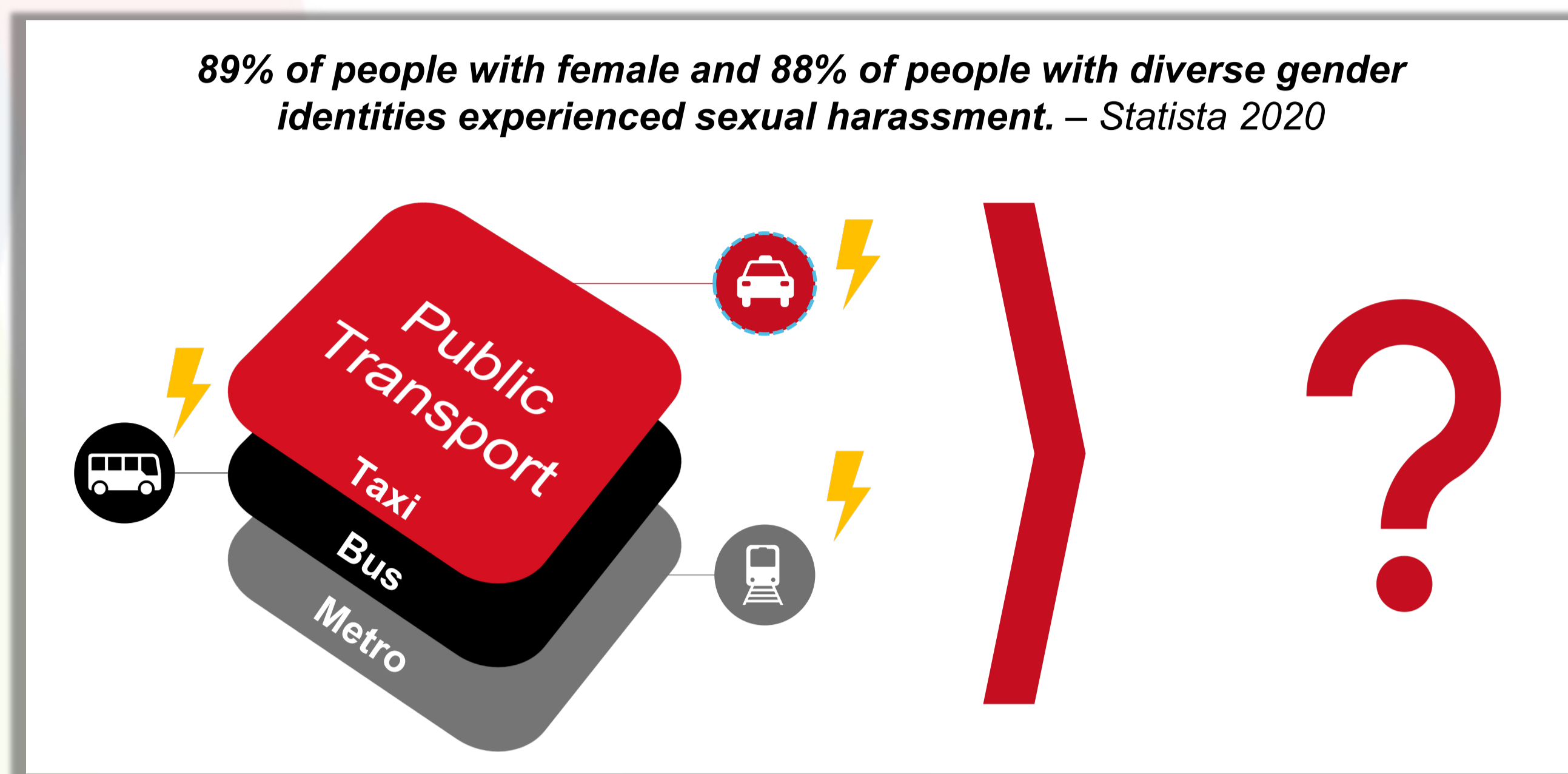


Sexual Harassment Prevention in Taxi Allocations under Gender Preferences

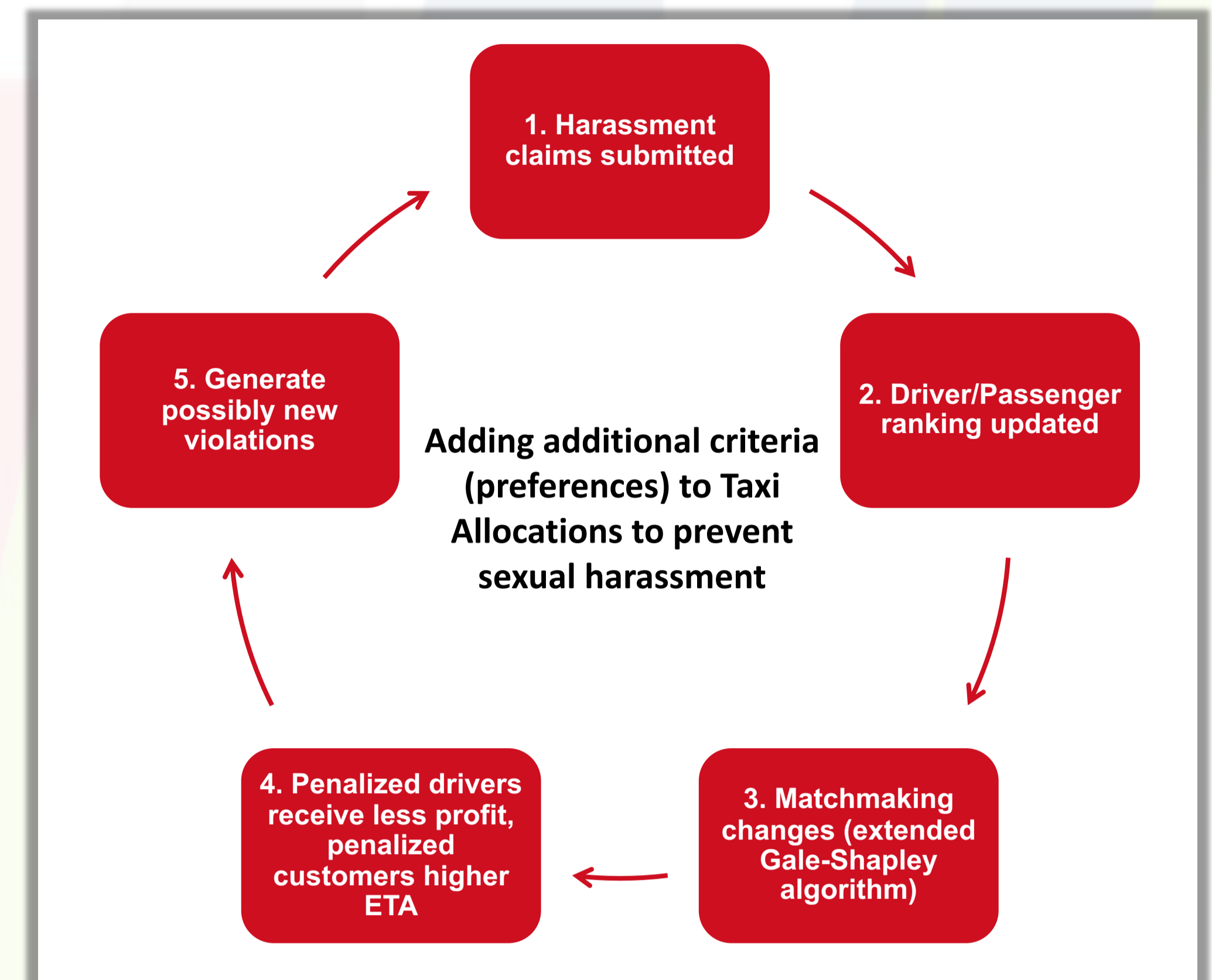
Tobias Labarta, TU Berlin
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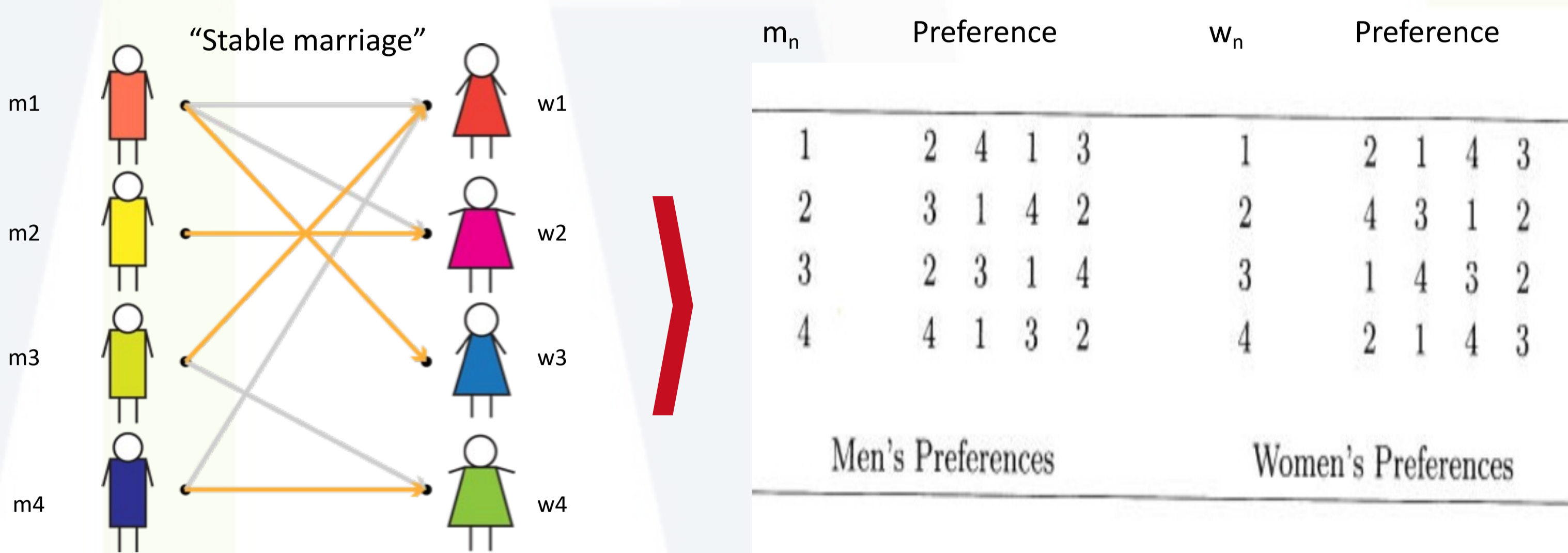
1. Motivation



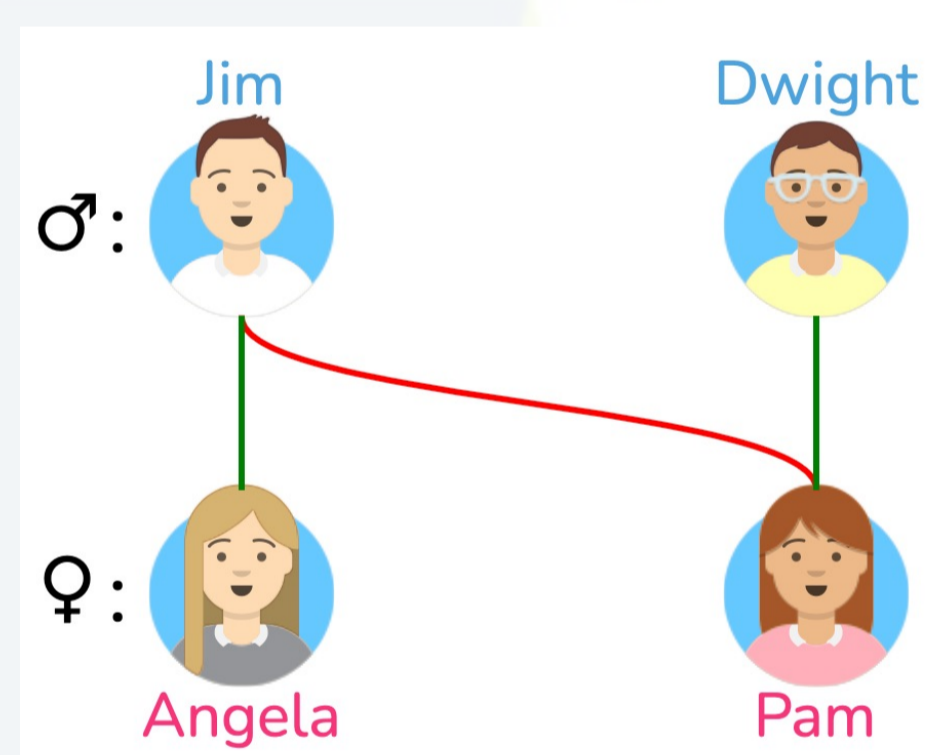
2. Approach



3. Model



“The Office” example



The Gale-Shapley algorithm involves a number of “rounds” (or “iterations”):

- In the first round, each unengaged man proposes to the woman he prefers most.
- and then each woman replies “maybe” to her suitor she most prefers and “no” to all other suitors.

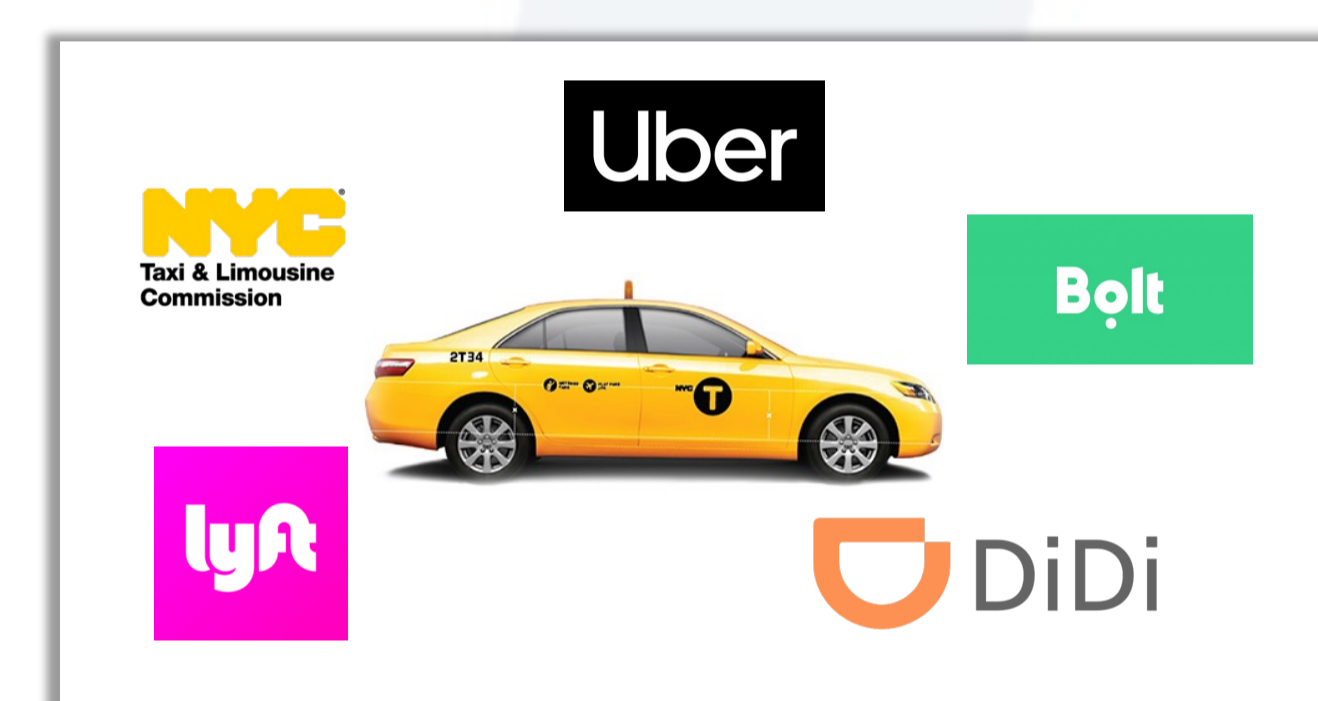
In each subsequent round,

- each unengaged man proposes to the most-preferred woman to whom he has not yet proposed,
- and then each woman replies “maybe” if she is not engaged or if she prefers this man over her current partner.
- This process is repeated until everyone is engaged.

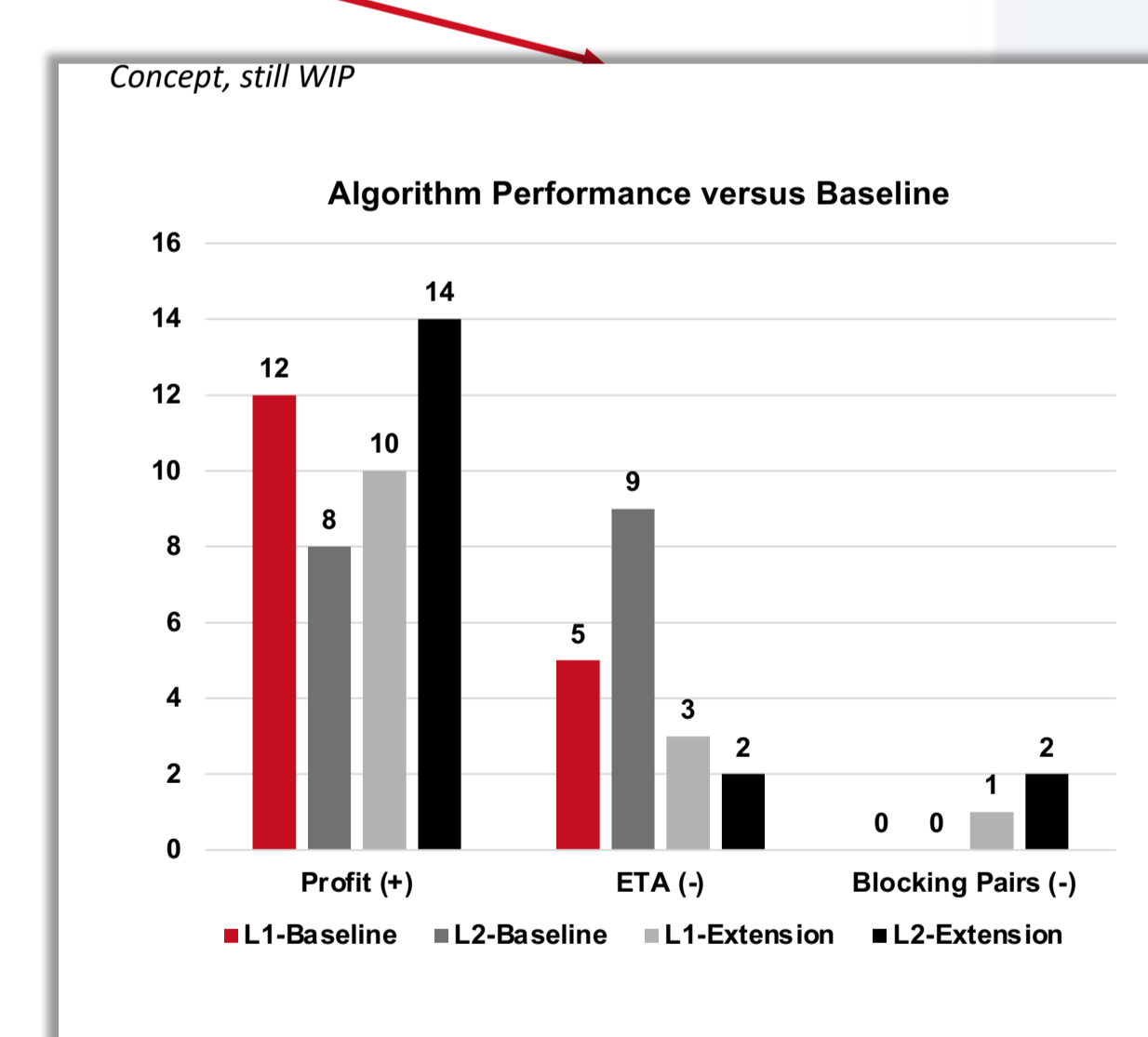
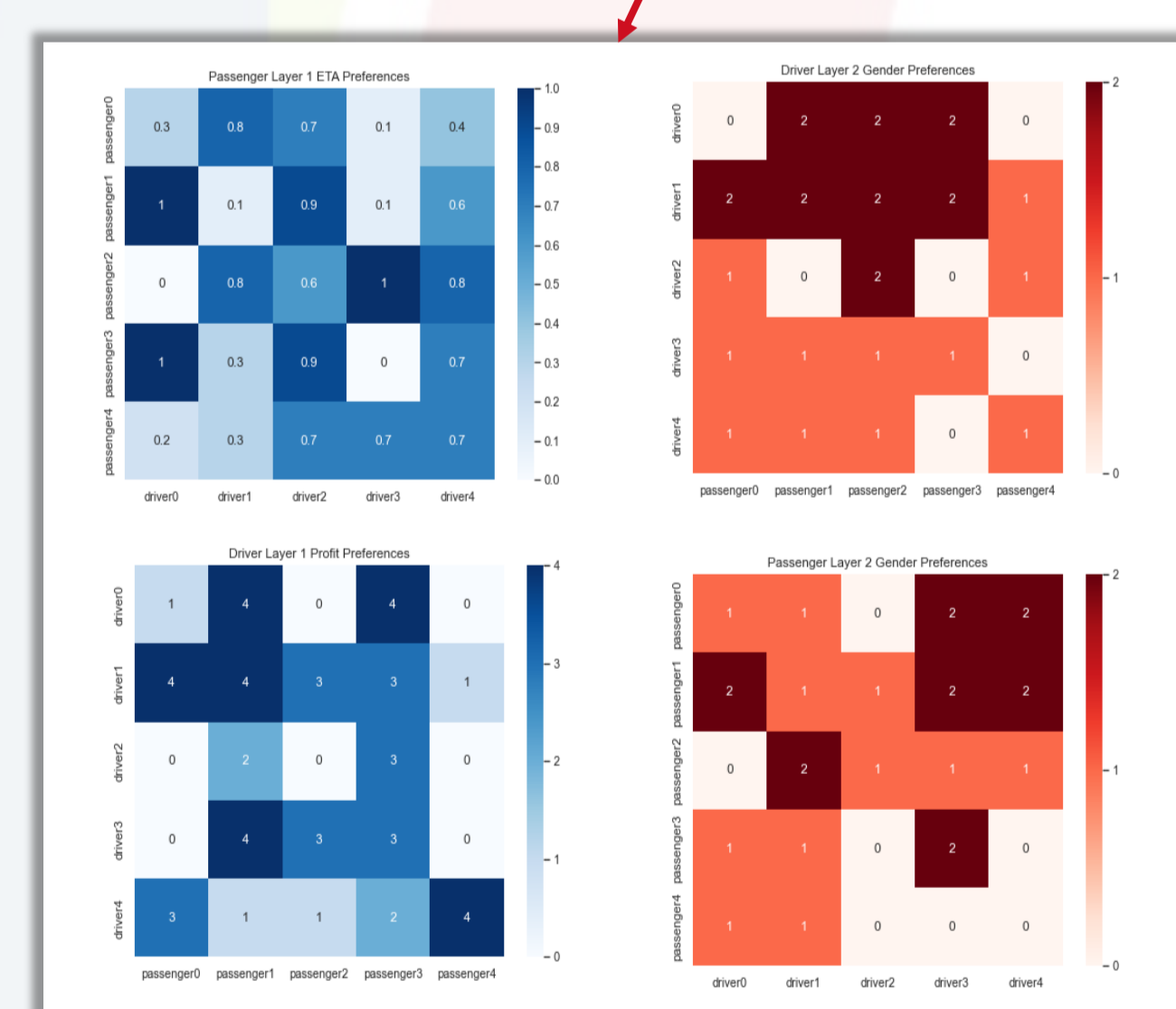
Source: Wikipedia

Avoid blocking pairs!
Stable matching only if blocking pairs == 0.

4. Applications



6. Evaluation



5. Results



→ Final Output: L_1 -stable matchings with minimized blocking pairs and optimized profit and ETA.



→ Final Output: L_2 -stable matchings with minimized blocking pairs and optimized profit and ETA.

7. Key Learnings and Future Work

Learning 1: Multi-layer stable matching not always possible.

Learning 2: Two extensions to Gale-Shapley developed to find 2-layer (nearly) stable, matchings.

Learning 3: Both extensions also optimize Profit and ETA.

Future Work: Experiments to implement and compare algorithms still ongoing.



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