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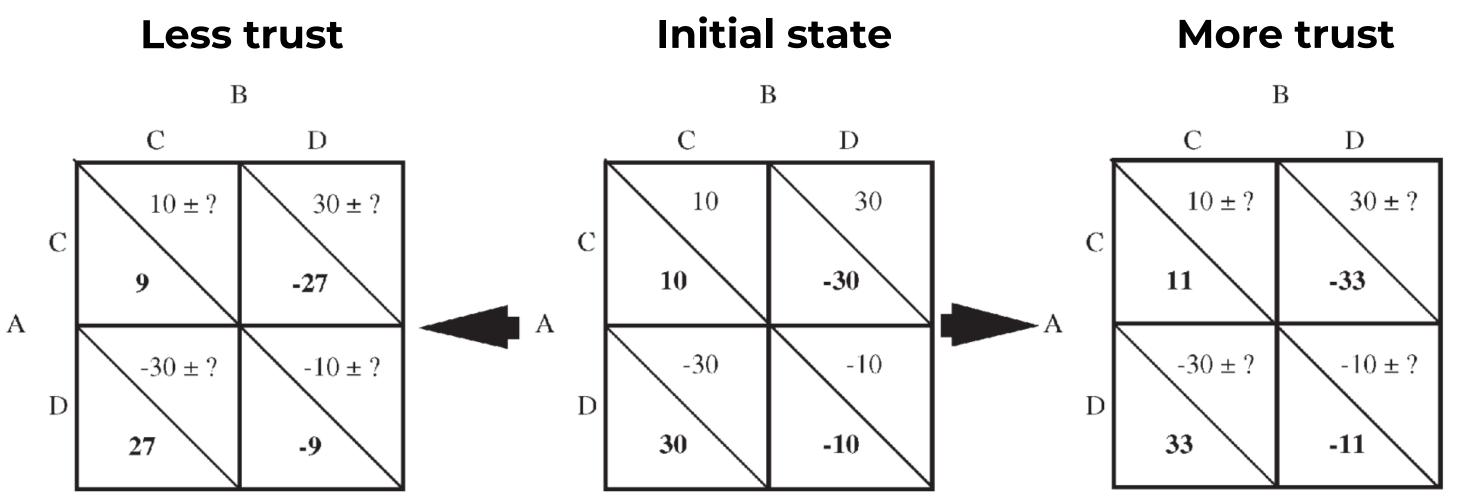
# 1. Research question

### How does trust influence the emergence of cooperation the spatial and evolutionary IPD?

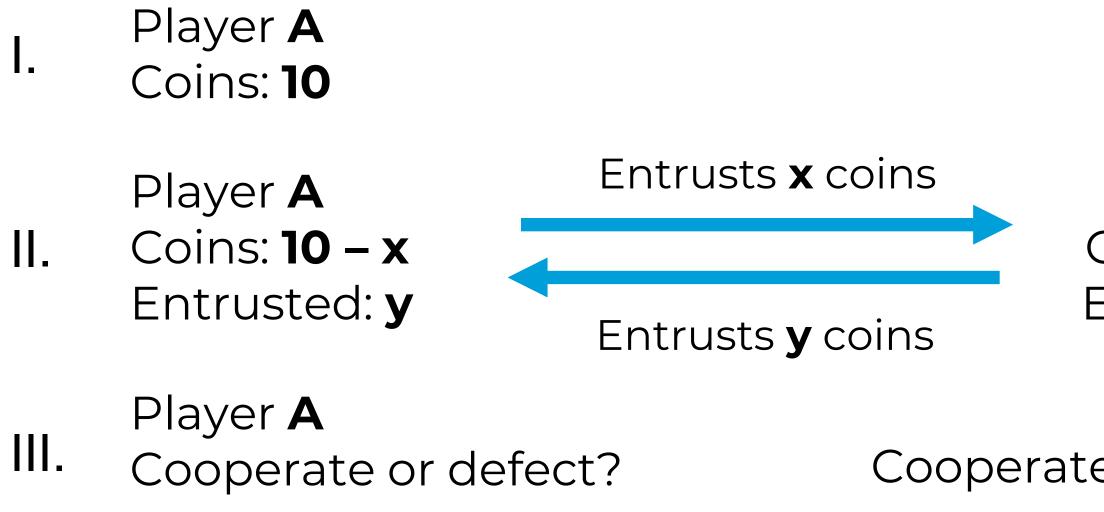
**Trust**: willingness to take risks under uncertainty **Spatial**: agents operate in a two-dimensional environment **Evolutionary**: agents can reproduce and follow the rules of evolution

## 2. Models

PD with Trust via Matrix Changes (PD/Dm)



PD with Trust via Coin Entrustment (PD/Dc)



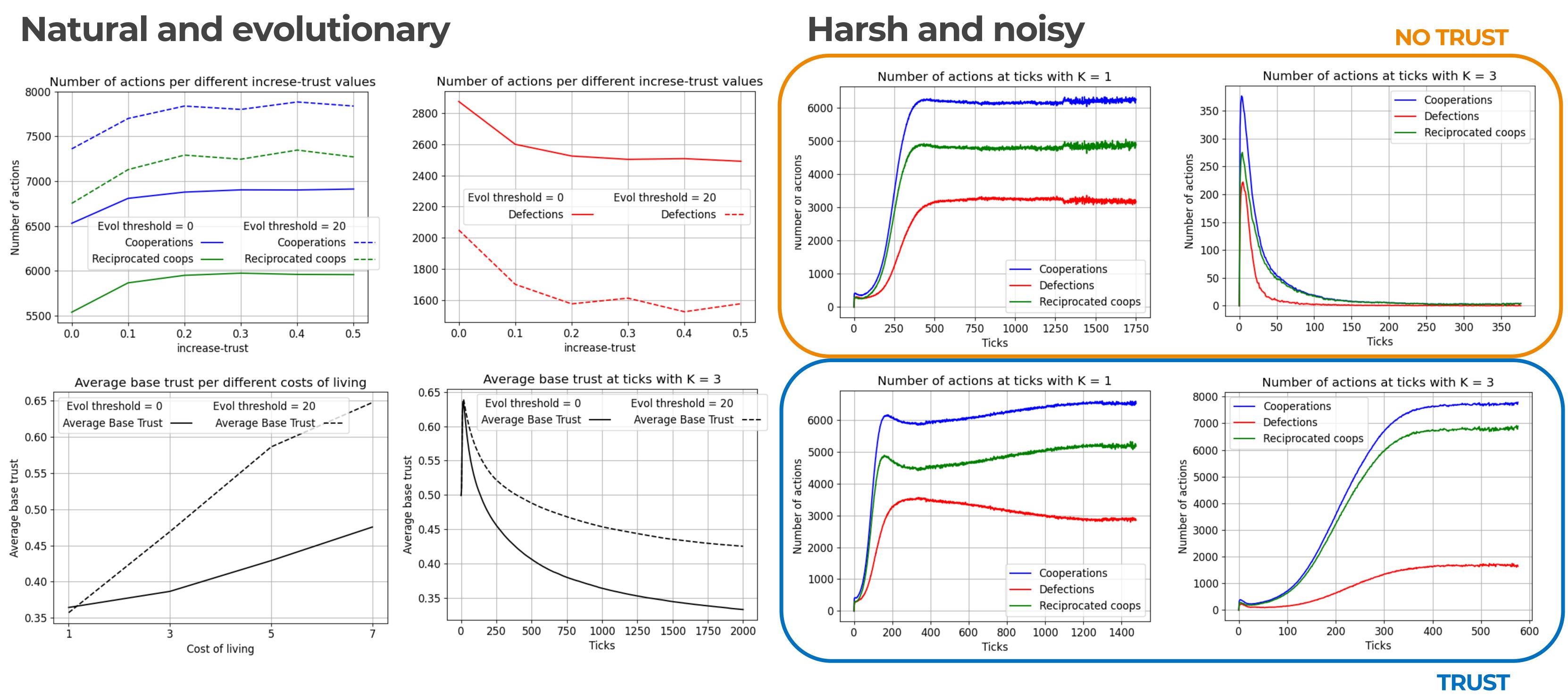
### Impact of Trust in the Spatial and Evolutionary Iterated Prisoner's Dilemma

Player **B** Coins: **10** 

Player **B** Coins: **10 – y** Entrusted: **x** 

Player **B** Cooperate or defect?

### **3. Results**



### 4. Conclusions

**Trust** facilitates emergence of cooperation

Agents reach **higher payoffs** faster

Agents **reproduce** more **quickly** 

Agents survive in harsher environments

**Trust** opens to exploitation by defectors

Defectors are surrounded by **more agents** 

Defectors attempt to **exploit trust** 

Defectors are **mitigated** soon

### References

Toshio Yamagishi, Satoshi Kanazawa, Rie Mashima and Shigeru Terai, Separating trust from cooperation in a dynamic relationship: prisoner's dilemma with variable dependence, 2005.