Agent Protocols for Social Computation

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Introduction

- Social computation is growing massively
- Platforms resemble multiagent systems
- Yet agent technologies are not used by them
  - Existing agent platforms too complex?
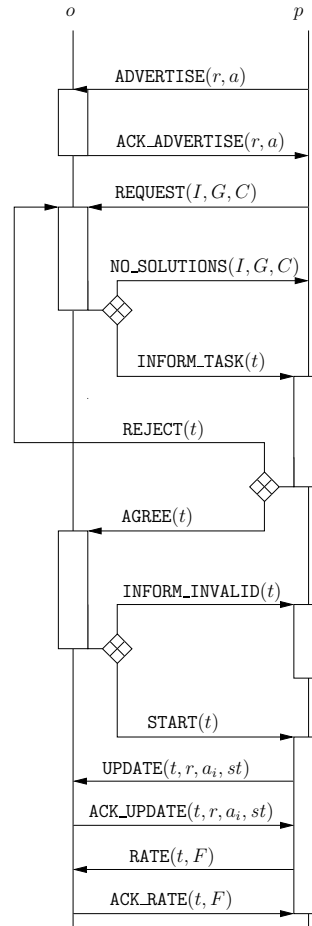 - Benefits not obvious outside agent community?

Contribution

- Framework for using agent protocols without the need for point-to-point communication

- Based on standard architecture of the Web
  - More likely to achieve uptake
  - Exploit scalability, robustness, simplicity

- Semantics for translating protocols to data-driven view of communication

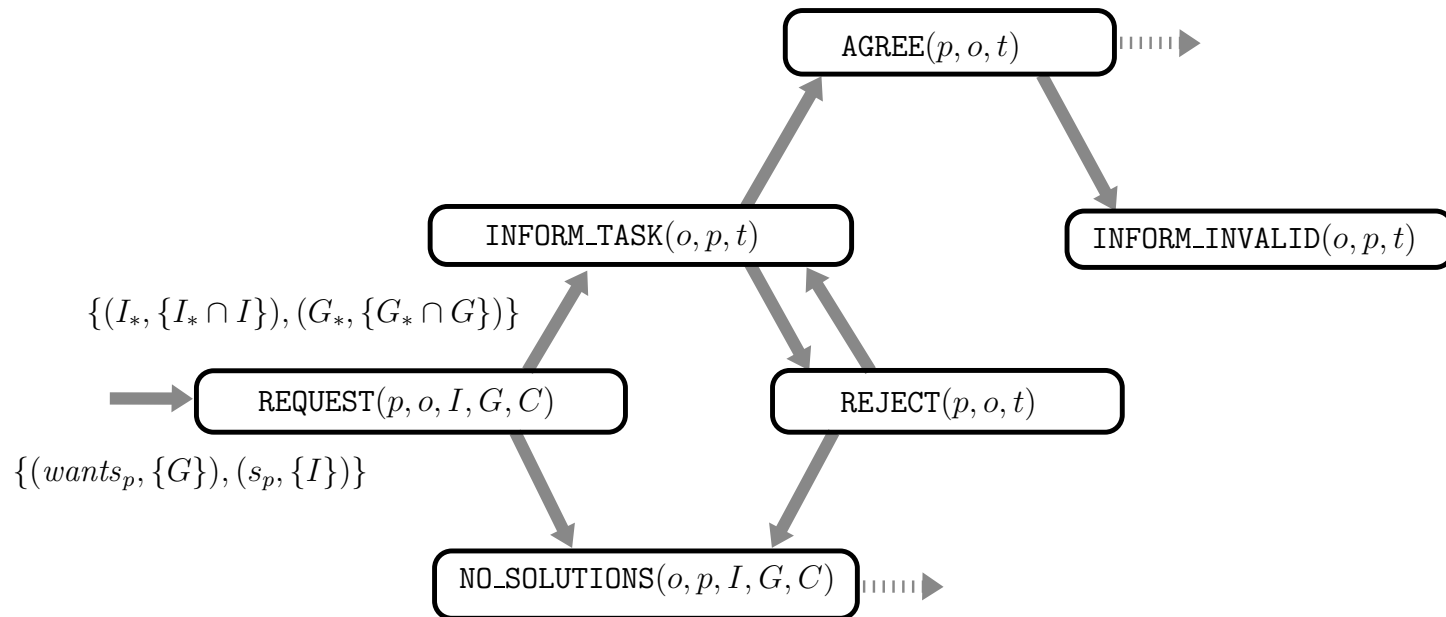- Implementation and preliminary empirical evaluation of scalability/robustness

Disclaimer

- Everything the proposed communication framework can do can be done without it

- Formal analysis only serves to show correctness, no provable superior properties

- Advantages have to be proven in the longer term, only initial empirical evidence here
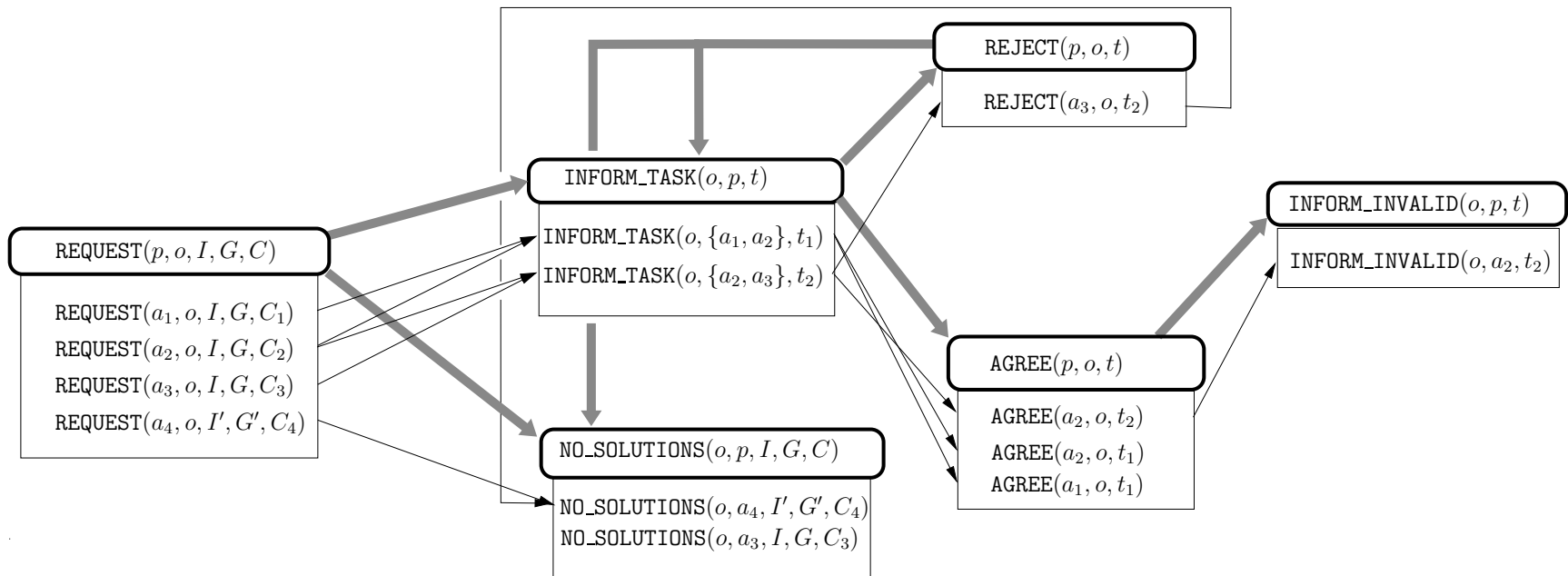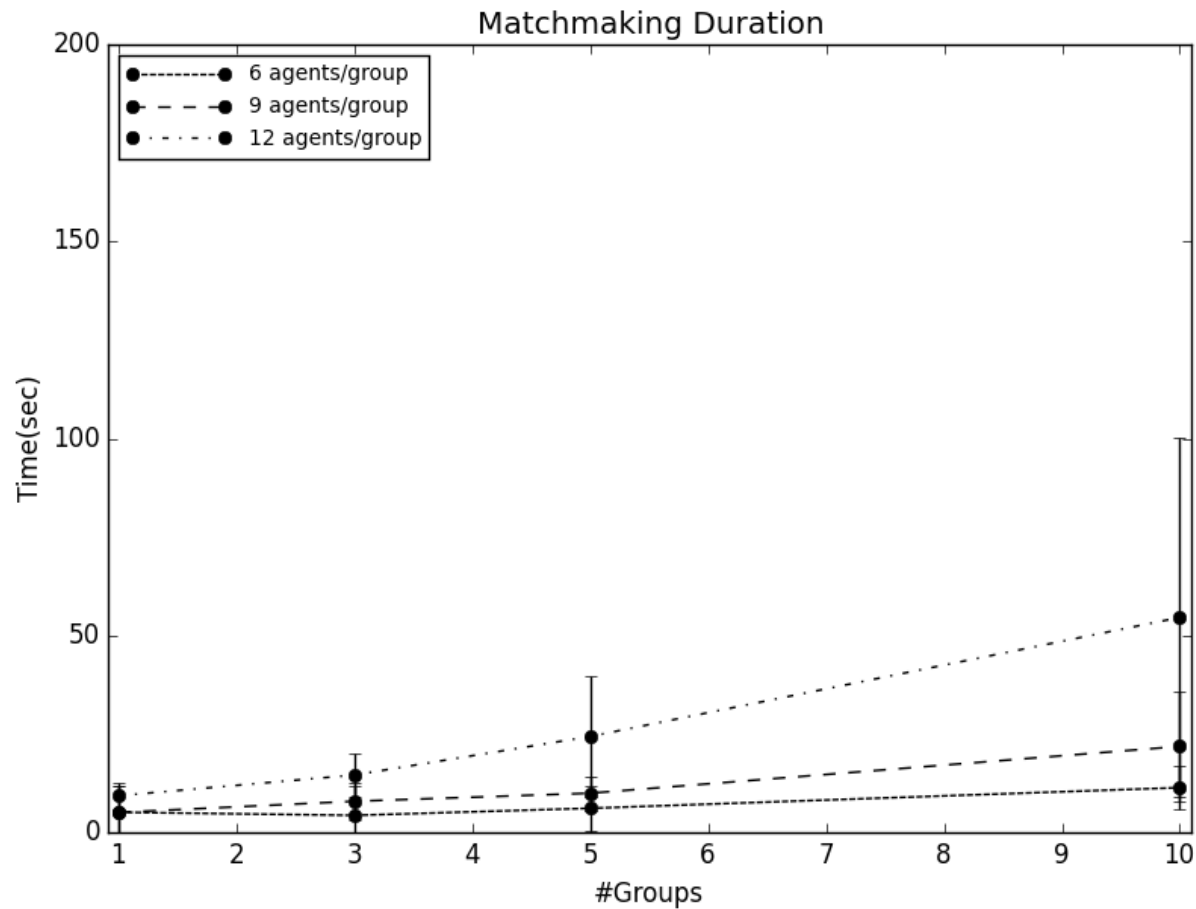
Agent protocols

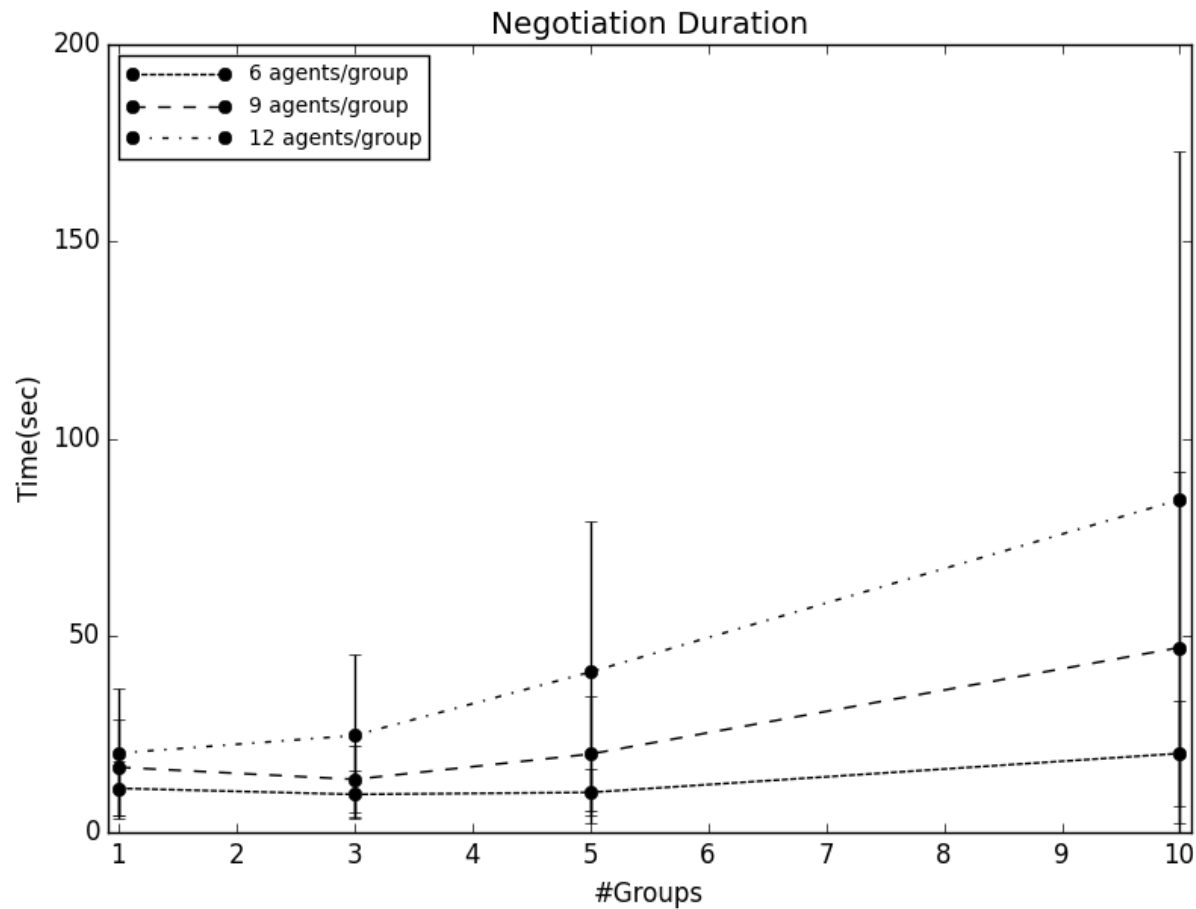# Protocol graphs

Protocol execution graph
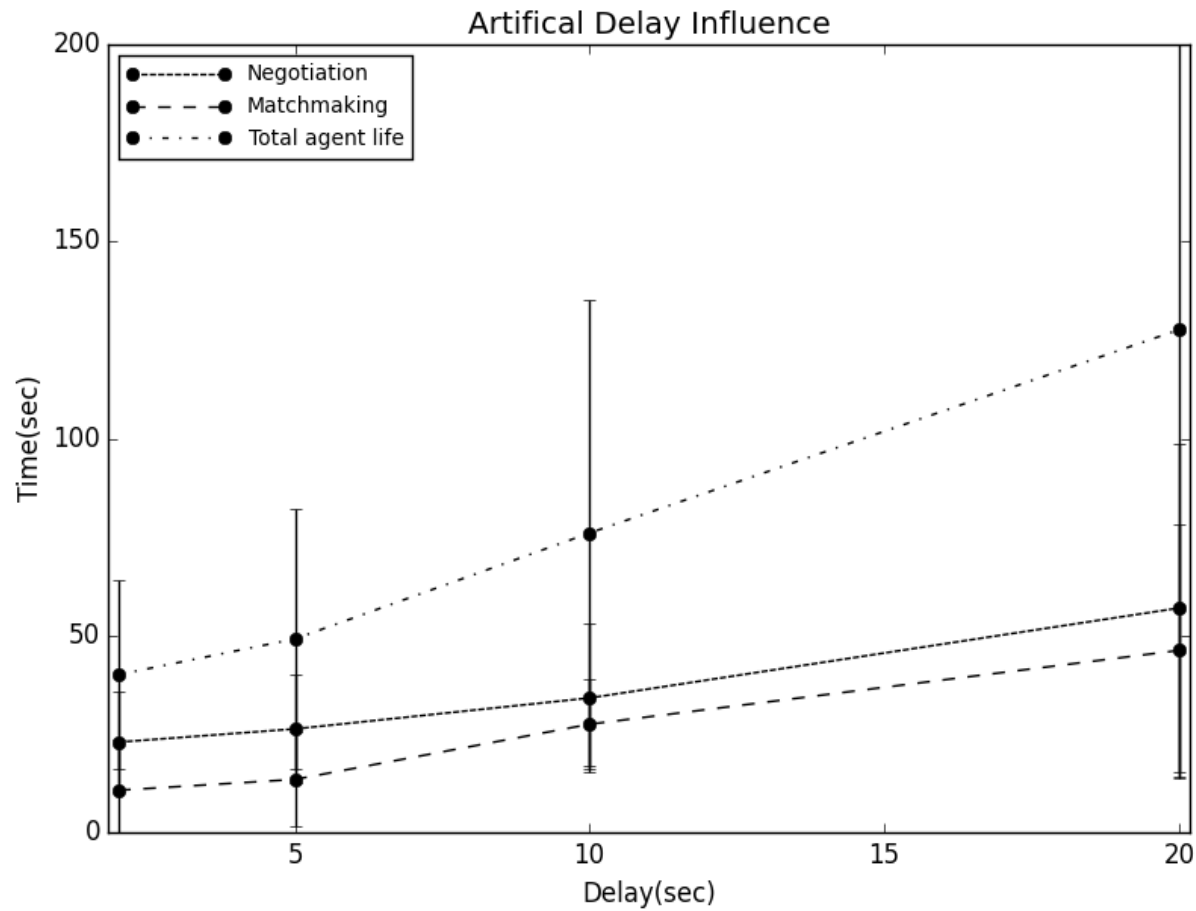
Simulation results

Simulation results

www.smart-society-project.eu

Simulation results

Related work

- Unlike blackboard systems, Linda etc we do *not* aim to replace but utilise agent protocols

- Unlike electronic institutions etc we do *not* aim to hand over control to central entities

- Unlike "agents-based web services" our semantics includes non-communicative action

- Important: instead of using bespoke middleware, we rely only on Web architecture

Future work

- Evaluate practical benefits of different communication framework more extensively

- Exploring more different types of protocols and degrees of computational distribution

- Develop methods to produce Web APIs automatically from protocol descriptions