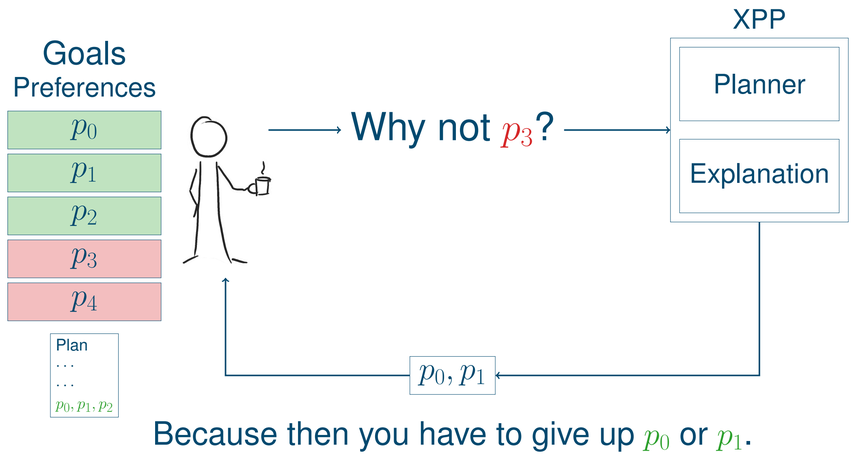
# Evaluating Plan-Property Dependencies: A Web-Based Platform and User Study

**Rebecca Eifler[1], Martim Brandao[2], Amanda Coles[2], Jeremy Frank[3] and Jörg Hoffmann[1]**

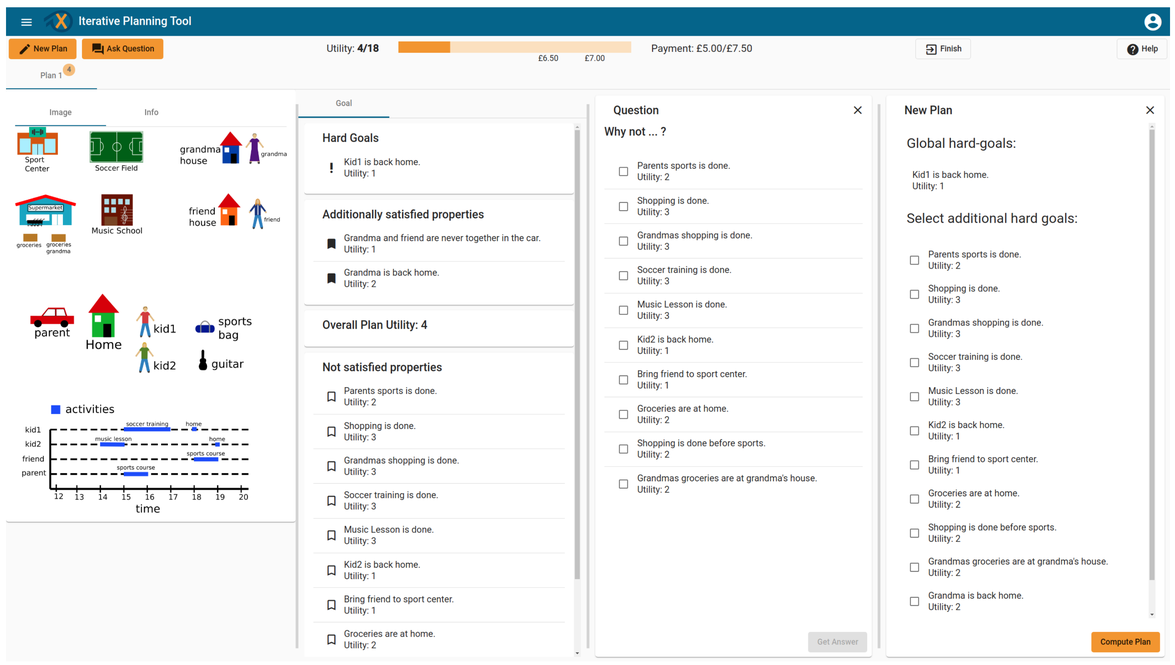
1: Saarland Informatics Campus, Saarland University, Saarbrücken, Germany, 2: King's College London, UK, 3: NASA Ames Research Center, Mountain View, CA, USA

## Framework: Iterative Planning with Explanations [1, 2]



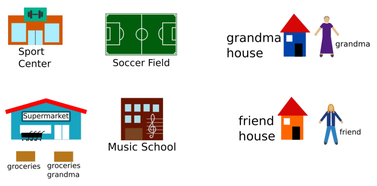

## Iterative Planning Tool

**GitHub: XPP-explainable-planning**

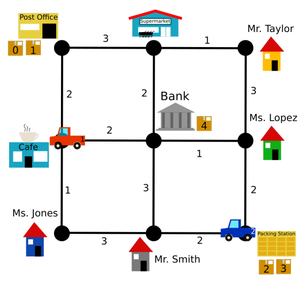



## User Study Design

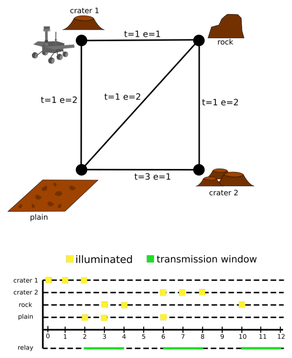
### Instances:




plan properties: 15
conflicts: 37

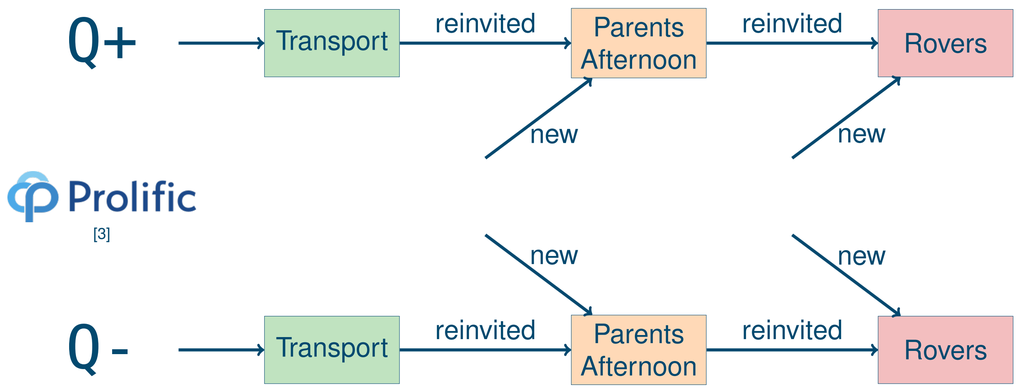



plan properties: 13
conflicts: 25

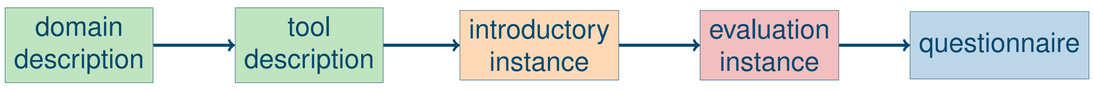



plan properties: 14
conflicts: 102

### Test Person Recruitment and Assignment:

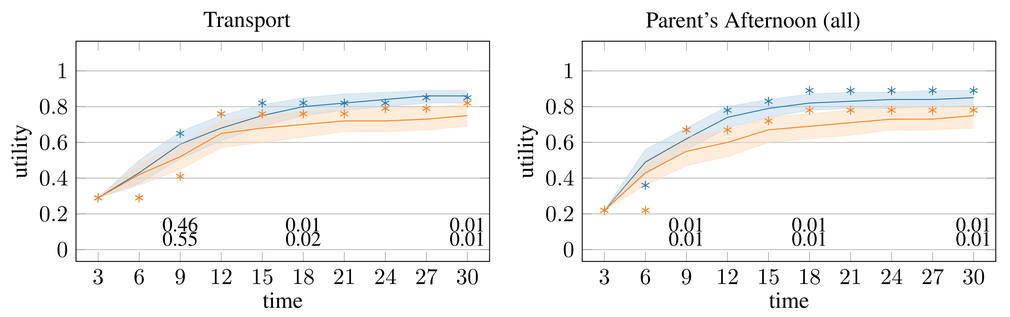


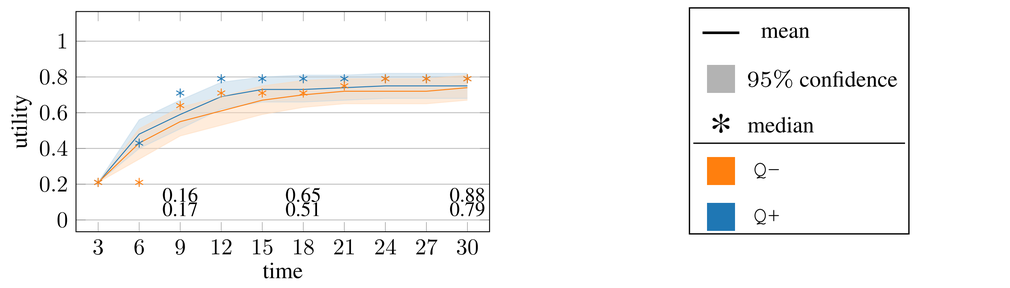

### User Study Setup



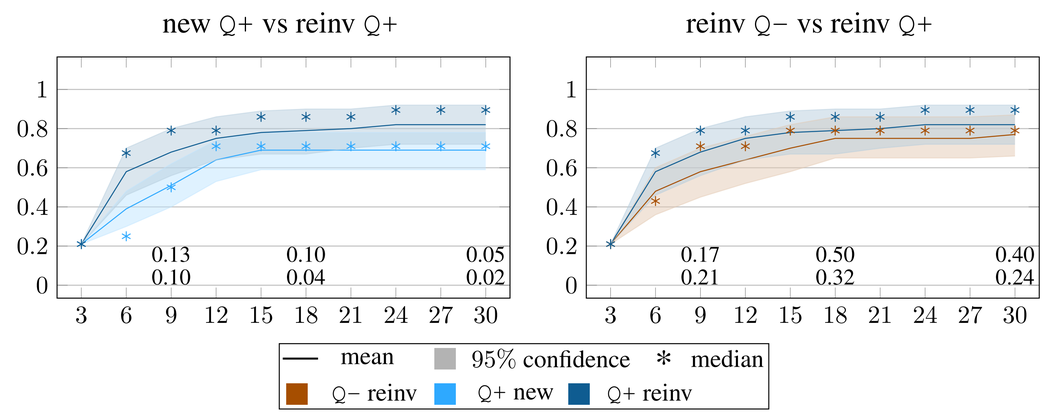

## User Study Results

### Utility over Time

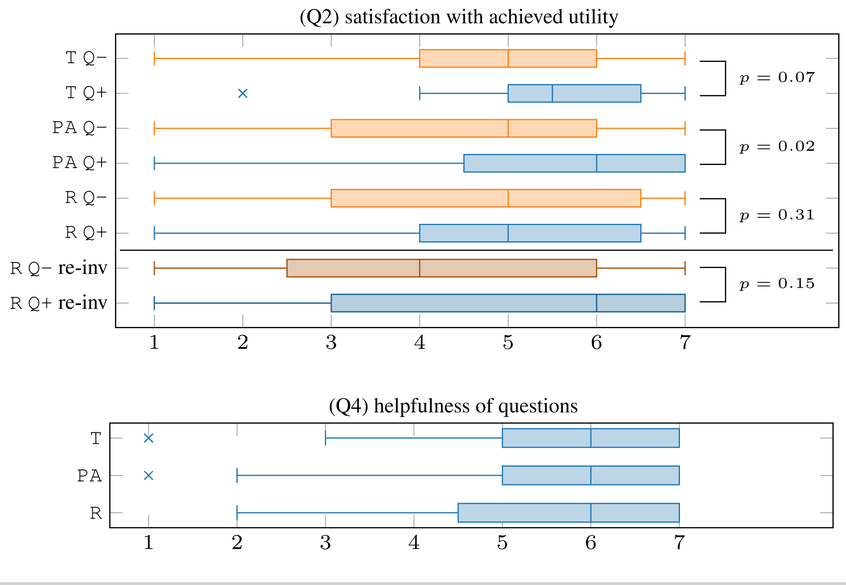



### Rovers: Re-invited vs New Test Persons




### Questionnaire:




## References

- Rebecca Eifler, Michael Cashmore, Jörg Hoffmann, Daniele Magazzeni, and Marcel Steinmetz. A new approach to plan-space explanation: Analyzing plan-property dependencies in oversubscription planning. In *AAAI*, 2020.
- Rebecca Eifler, Marcel Steinmetz, Alvaro Torralba, and Jörg Hoffmann. Plan-space explanation via plan-property dependencies: Faster algorithms & more powerful properties. In *IJCAI*, pages 4091–4097, 2020.
- Stefan Palan and Christian Schitter. Prolific.ac — a subject pool for online experiments. *Journal of Behavioral and Experimental Finance*, 17:22–27, 2018.

**Acknowledgment**
This material is based upon work supported by the Air Force Office of Scientific Research under award number FA9550-18-1-0245, and by the German Research Foundation (DFG) under grant 389792660 as part of TRR 248.