

Evaluating the Cyclic Landmark Heuristic with a Logistics-specific Landmark Generator

Günes Aydin <guenes.aydin@unibas.ch>

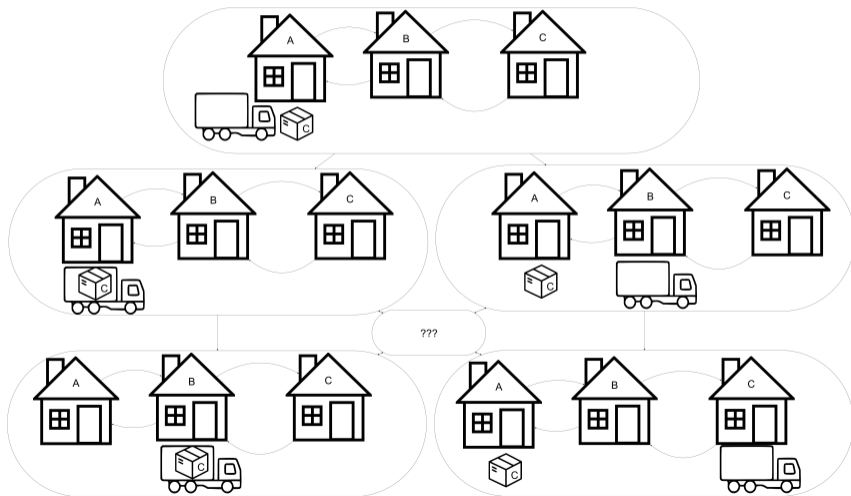
Department of Mathematics and Computer Science, University of Basel

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Outline

1. Background
2. Logistics Task and Landmarks
3. Cyclic Landmark Heuristic
4. Generating Landmarks
5. Experimental Evaluation

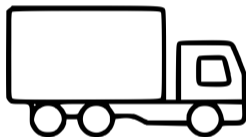
Classical Planning, State Space, and Heuristic Search



Logistics Task



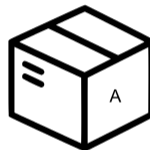
House with location A



Truck in a city



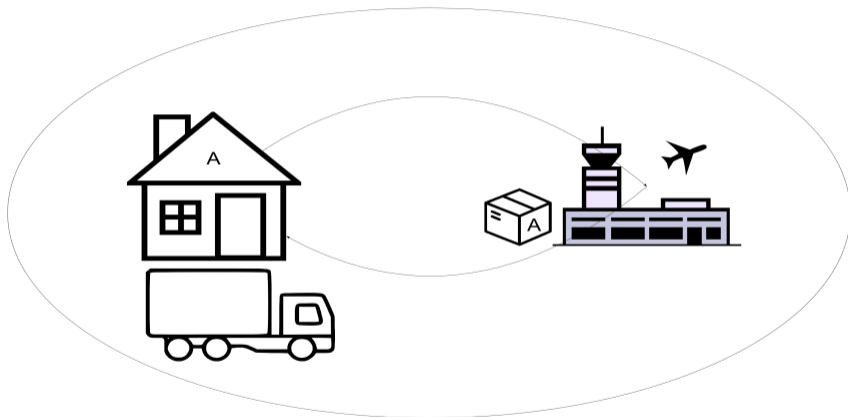
Airport with an airplane



Package with destination A

Logistics Task

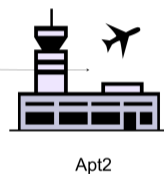
Delivery Graph



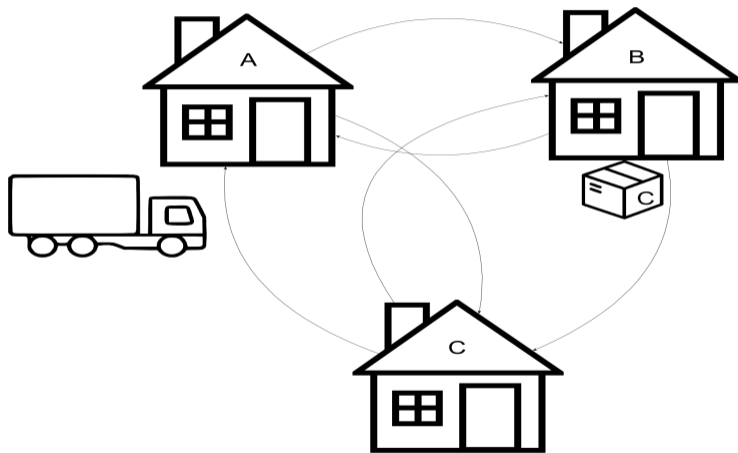
Truck Delivery Graph

Landmarks

Properties that must hold in every plan:



Landmarks

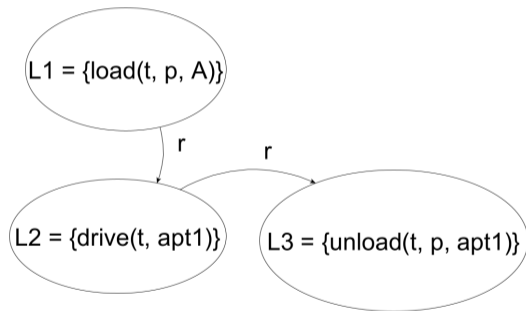
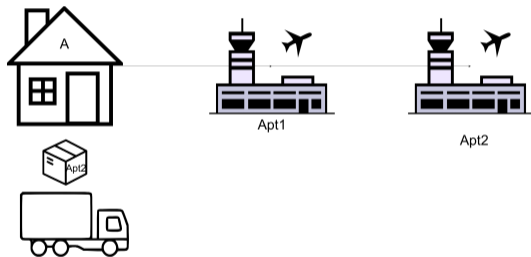


Landmark Ordering

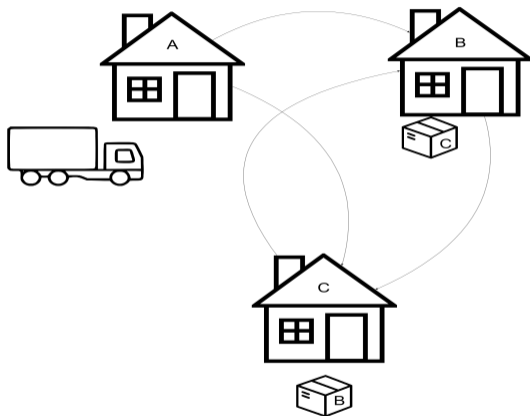
Dependencies between landmarks:

- › Reasonable Orderings (Drive to location of package before to the goal)
- › Natural Orderings (Unload impossible without loading)

Landmark Graph



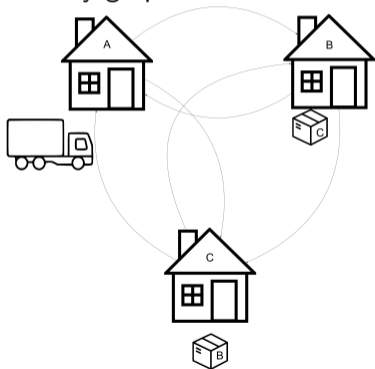
Cyclic Landmark Heuristic



Landmark Graph with edges/orderings

Generating Landmarks

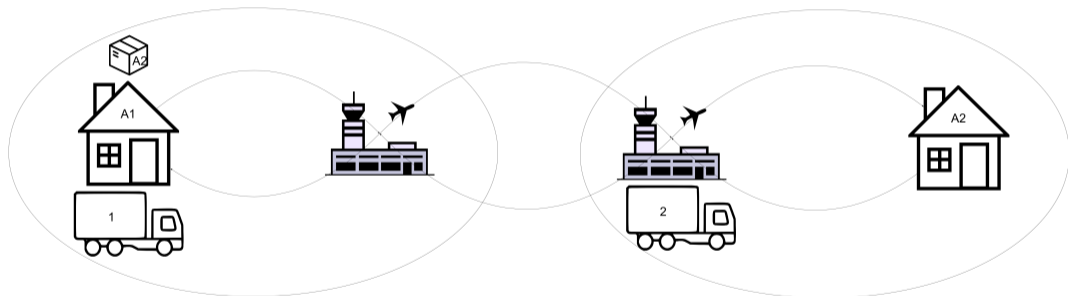
Truck Landmark, every in-outgoing edge in delivery graph



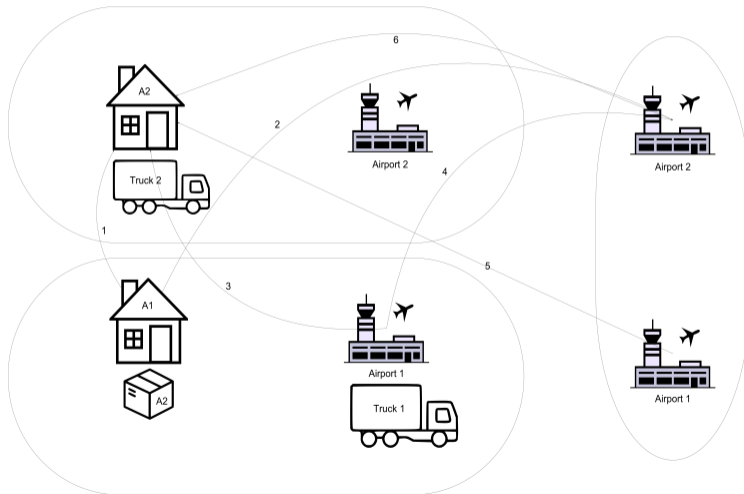
Airplane Landmark, every in-outgoing edge in delivery graph



Generating Landmarks



Integrated Landmark Graph

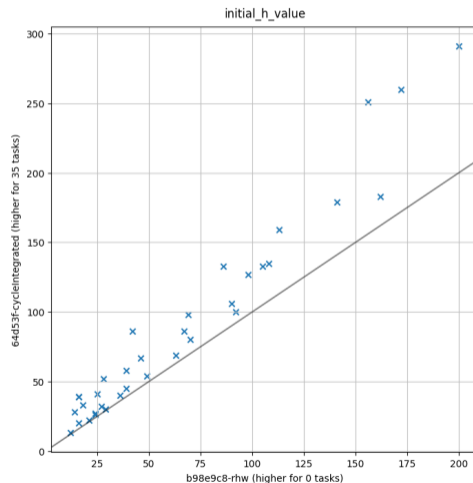
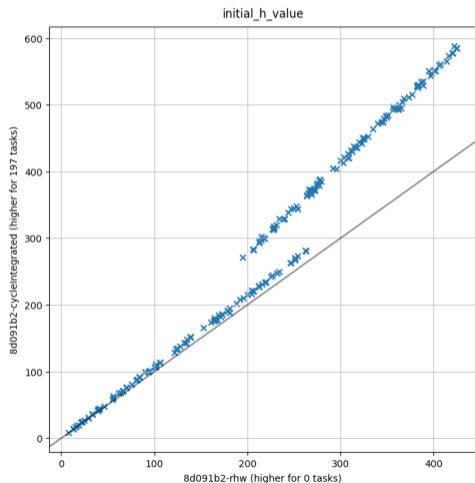


Experimental Evaluation

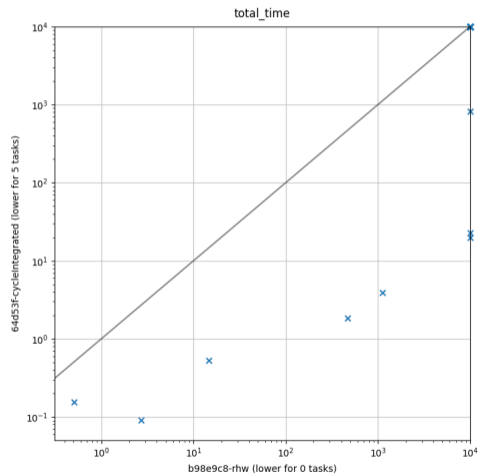
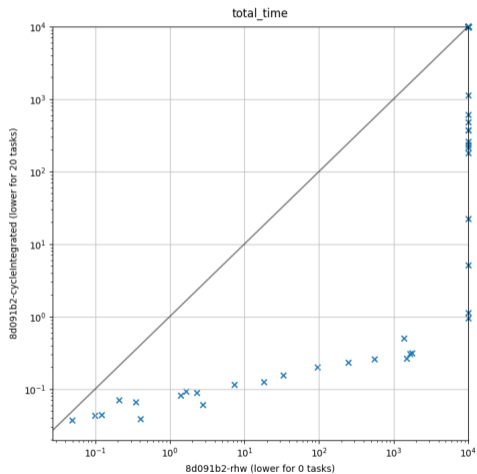
Three IPC benchmark sets:

- › Logistics98
- › Logistics00
- › Additional logistics benchmark set

Experimental Evaluation



Experimental Evaluation



Questions?

guenes.aydin@unibas.ch