

Revisiting Landmarks: How To Learn from Previous Plans to Generalize over Problem Instances

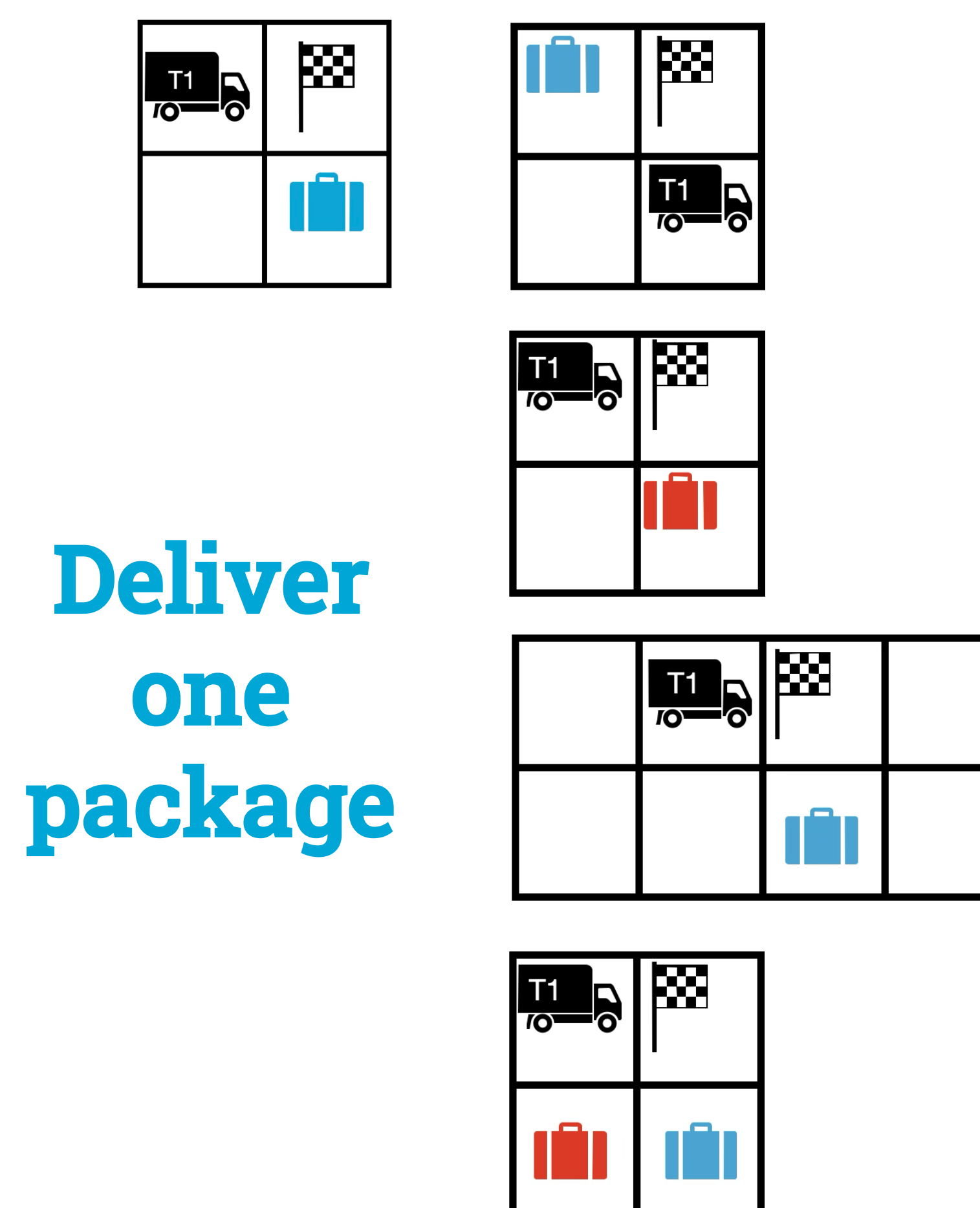
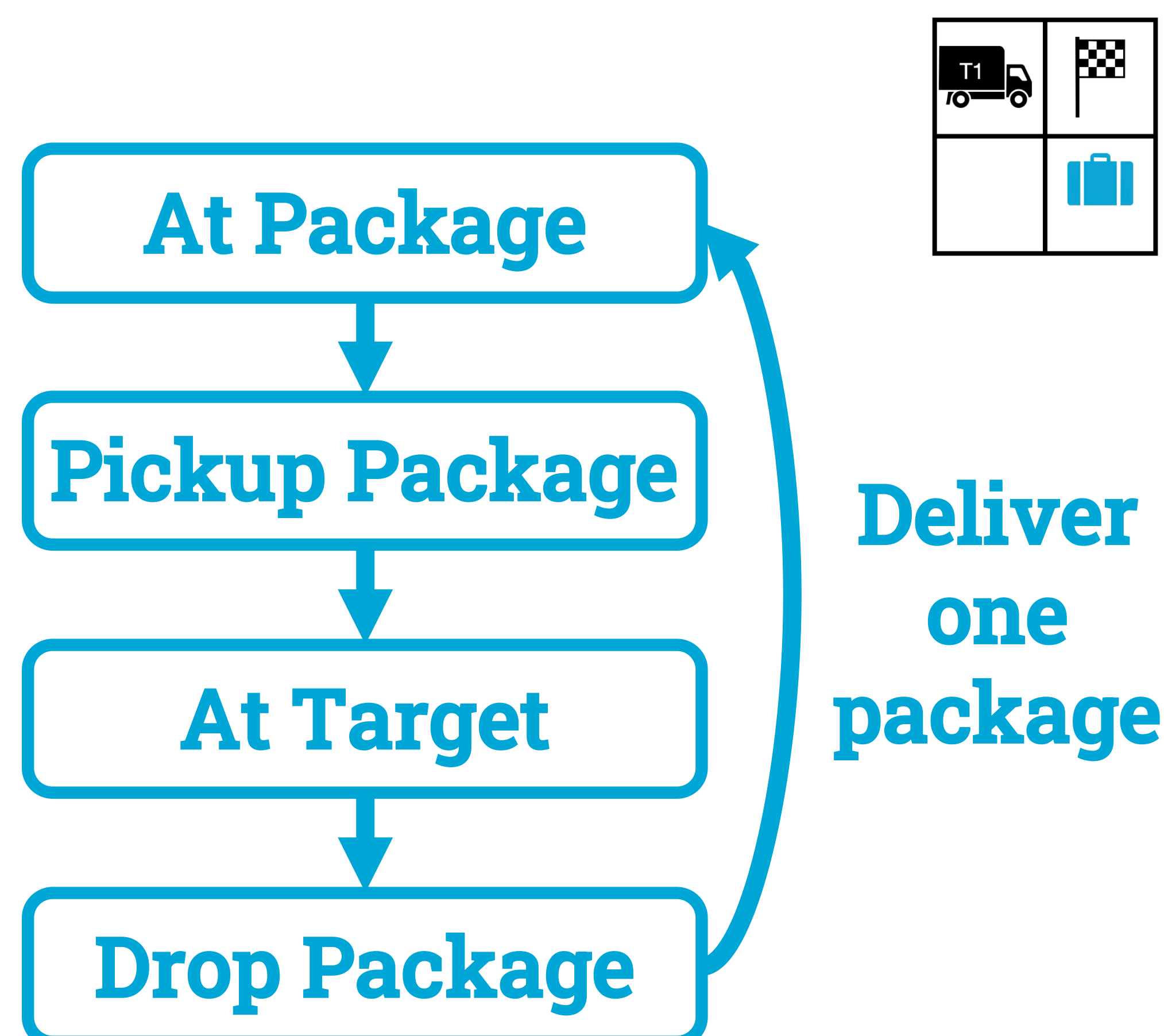
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TLDR

Compared to traditional landmarks, we step beyond ground atoms and generalize across the objects and predicates. By capturing the repetition in a domain, our heuristic scales to large instances. We propose to learn the landmark graph for an entire domain from the plans of a few small instances.

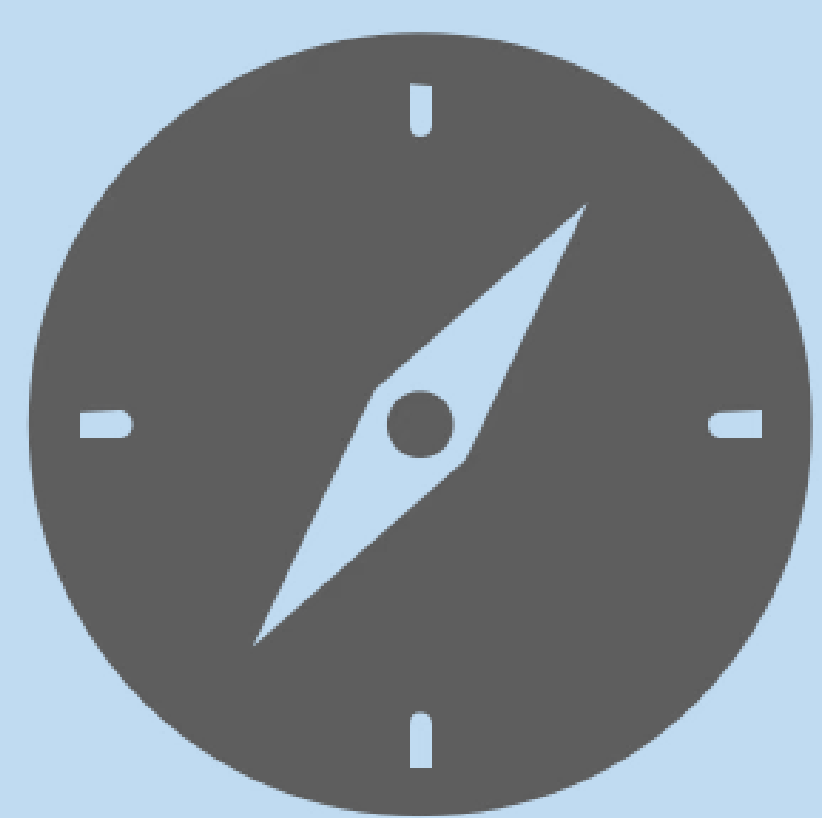


Symmetry Independence

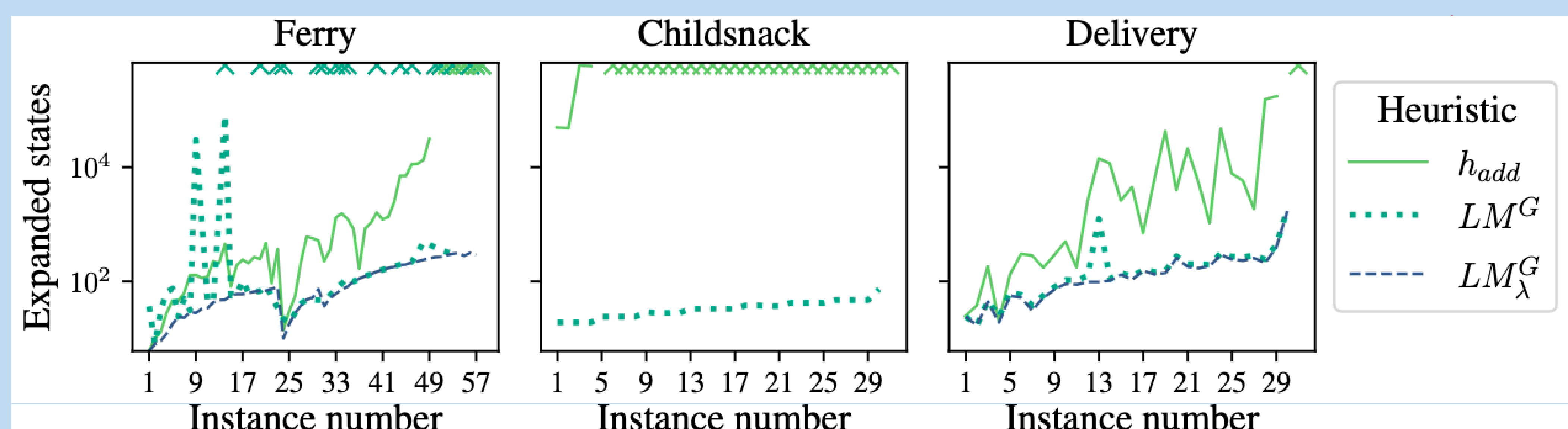
Object Independence

Context Independence

Repetition Independence



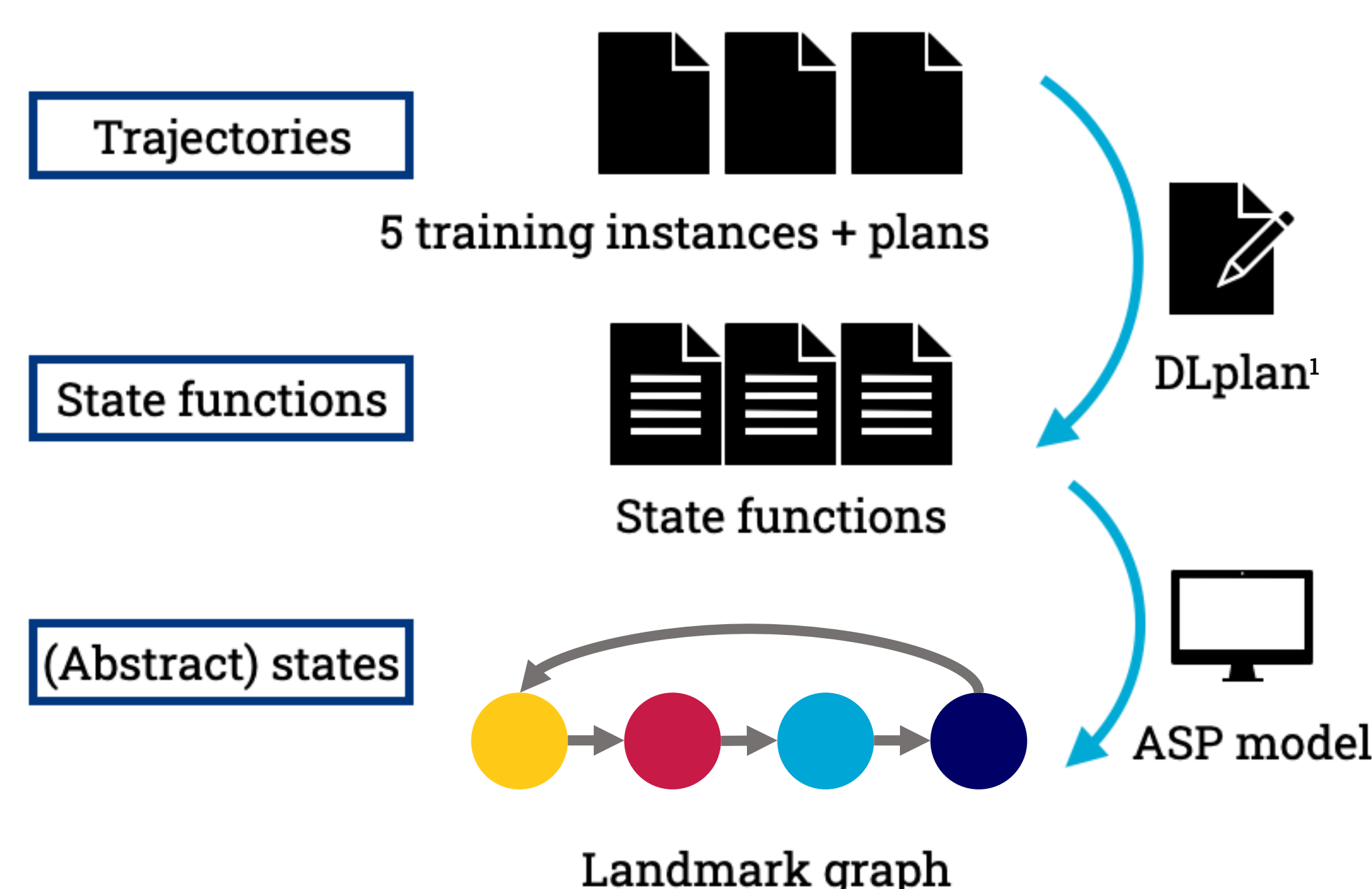
Scale to complex instances



- Heuristic: Roll out landmark graph, order of objects is independent
 - Long horizon: number of landmarks achieved and prune on loop traversal
 - Short horizon: guide function (λ) + counting the achieved state functions
- Results show that the plans are of similar length between heuristics



Learn once



		S	F	T/O	O/M	Time	h_{add}
Childsnack (30)	FD	2	0	8	20	95.60	60.96
	manual	2	0	0	28	135.67	60.96
Delivery (30)	FD	6	8	16	0	35.14	13.53
	manual	10	0	20	0	26.99	16.18
Ferry (57)	FD	11	0	5	41	26.12	14.74

¹Drexler, D.; Francès, G.; and Seipp, J. 2022. DLPlan. <https://doi.org/10.5281/zenodo.5826139>. Zenodo.

