

Automated Planning - Lab 5

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5.1 Compare planning with TLPlan to what you did previously in PDDL and HTN. Was it easier/harder to get good plans?

Answer: At first we tried to make rules that forced the planner to make a certain action in the next step but there was probably an overlap between the preconditions of these rules so that no action could be performed. After some attempts we decided to make rules that prevented bad actions to be performed which lead to some progress in the lab. Once we learned how to interpret the log file and how to write the rules we quickly got better plans. Opposed to the HTN and PDDL we spent a lot more time on improving the plans generated by the TLP. In HTN it seemed like we simply decided how the problem should be solved whereas in PDDL we gave the planner a problem and it solved it for us. TLP, on the other hand, was something in between where it did give us a plan based on just the problem but allowed us to improve the quality of those plans by writing rules for guidance.

5.2 List the control rules you used.

Answer: Below you can see the different control rules listed:

1. If there is a carrier with items at a location where they are needed don't pick up item with another uav located at another location.
2. If a carrier is carrying items in a location where it is needed, unload.
3. Only pickup a type if there is some place to deliver it.
4. Don't fly to a location with a uav if the demand is ≥ 1 .
5. If a carrier at depot fills a need, don't pick up another crate.
6. Don't fly empty carrier to another location than depot.
7. Don't pick up empty carriers if positioned at depot.
8. Don't pick up item if another uav is holding some item.
9. Don't pick up carrier if already carried by other uav.
10. Don't fly uav carrying carrier with items to a location that requires more than we carry.
11. Don't fly uav carrying item to location that doesn't require that item.
12. Don't fly empty uav to a location that is not depot

5.3 Was it possible to get TLPlan to use carriers in an efficient way?

Answer: Yes, it was possible but it required many control rules. Basically we had to look at the generated plan and then observe a suboptimal behavior and then generate a control rule for it.

5.4 Report on any changes you had to make to the original problem in order to get plans with/without carriers.

Answer: None.