We experiment with the logistic domain and the MAPF domain \cite{}

In the logistic domain, we consider airplanes and trucks are agents. As movements of trucks are limited to within a city, we allow truck agents in the same city to know each other but do not know about the existence of truck agents in other cities. On the other hand, because of airplanes can fly between cities, we consider that airplanes agents know other airplane agents and all truck agents.

On the other hand, in the MAPF domain, we consider that each agent know all other agents as mentioned in the previous section.

For each domain, we ran two main configurations.

|  |  |  |
| --- | --- | --- |
| (("apn1"),("fly-airplane",  ("apn1"),("apt2"),("apt1")),1).  (("apn1"),("fly- airplane", ("apn1"),("apt1"),("apt2")),2).  (("apn1"),("fly-airplane", ("apn1"),("apt2"),("apt1")),3).  (("apn1"),("fly-airplane", ("apn1"),("apt1"),("apt2")),4).  (("apn1"),("load-airplane", ("obj23"),("apn1"),("apt2")),5).  (("apn1"),("load-airplane", ("obj21"),("apn1"),("apt2")),6).  (("apn1"),("fly-airplane", ("apn1"),("apt2"),("apt1")),7).  (("apn1"),("unload-airplane", ("obj21"),("apn1"),("apt1")),8).  (("apn1"),("unload-airplane", ("obj23"),("apn1"),("apt1")),9).  (("apn1"),("load-airplane", ("obj13"),("apn1"),("apt1")),10).  (("apn1"),("unload-airplane", ("obj13"),("apn1"),("apt1")),11).  (("apn1"),("load-airplane", ("obj11"),("apn1"),("apt1")),12).  (("apn1"),("unload-airplane", ("obj11"),("apn1"),("apt1")),13).  (("apn1"),("fly-airplane", ("apn1"),("apt1"),("apt2")),14). | (("tru1"),("load-truck", ("obj13"),("tru1"),("pos1")),1).  (("tru1"),("load-truck", ("obj11"),("tru1"),("pos1")),2).  (("tru1"),("load-truck", ("obj12"),("tru1"),("pos1")),3).  (("tru1"),("drive-truck", ("tru1"),("pos1"),("apt1"),("cit1")),4).  (("tru1"),("drive-truck", ("tru1"),("apt1"),("pos1"),("cit1")),5).  (("tru1"),("drive-truck", ("tru1"),("pos1"),("apt1"),("cit1")),6).  (("tru1"),("unload-truck", ("obj13"),("tru1"),("apt1")),7).  (("tru1"),("unload-truck", ("obj11"),("tru1"),("apt1")),8).  (("tru1"),("load-truck", ("obj21"),("tru1"),("apt1")),9).  (("tru1"),("load-truck", ("obj23"),("tru1"),("apt1")),10).  (("tru1"),("drive-truck", ("tru1"),("apt1"),("pos1"),("cit1")),11).  (("tru1"),("unload-truck", ("obj23"),("tru1"),("pos1")),12).  (("tru1"),("unload-truck", ("obj21"),("tru1"),("pos1")),13).  (("tru1"),("unload-truck" ,("obj12"),("tru1"),("pos1")),14). | (("tru2"),("load-truck", ("obj21"),("tru2"),("pos2")),1).  (("tru2"),("load-truck", ("obj23"),("tru2"),("pos2")),2).  (("tru2"),("drive-truck", ("tru2"),("pos2"),("apt2"),("cit2")),3).  (("tru2"),("unload-truck", ("obj23"),("tru2"),("apt2")),4).  (("tru2"),("unload-truck", ("obj21"),("tru2"),("apt2")),5).  (("tru2"),("drive-truck", ("tru2"),("apt2"),("pos2"),("cit2")),6).  (("tru2"),("drive-truck", ("tru2"),("pos2"),("apt2"),("cit2")),7).  (("tru2"),("drive-truck", ("tru2"),("apt2"),("pos2"),("cit2")),8).  (("tru2"),("drive-truck", ("tru2"),("pos2"),("apt2"),("cit2")),9).  (("tru2"),("drive-truck", ("tru2"),("apt2"),("pos2"),("cit2")),10).  (("tru2"),("load-truck", ("obj22"),("tru2"),("pos2")),11).  (("tru2"),("drive-truck", ("tru2"),("pos2"),("apt2"),("cit2")),12).  (("tru2"),("drive-truck", ("tru2"),("apt2"),("pos2"),("cit2")),13).  (("tru2"),("unload-truck" ,("obj22"),("tru2"),("pos2")),14). |

goal(variable(("at", (“obj11"), (“apt1"))), value(variable(("at", (“obj11"), (“apt1"))), true)).

goal(variable(("at", (“obj23"), (“pos1"))), value(variable(("at", (“obj23"), (“pos1"))), true)).

goal(variable(("at", (“obj13"), (“apt1"))), value(variable(("at", (“obj13"), (“apt1"))), true)).

goal(variable(("at", (“obj21"), (“pos1"))), value(variable(("at", (“obj21"), (“pos1"))), true)).

initialState(variable(("at", (“apn1"), (“apt2"))), value(variable(("at", (“apn1"), (“apt2"))), true)).

initialState(variable(("at", (“tru1"), (“pos1"))), value(variable(("at", (“tru1"), (“pos1"))), true)).

initialState(variable(("at", (“obj11"), (“pos1"))), value(variable(("at", (“obj11"), (“pos1"))), true)).

initialState(variable(("at", (“obj12"), (“pos1"))), value(variable(("at", (“obj12"), (“pos1"))), true)).

initialState(variable(("at", (“obj13"), (“pos1"))), value(variable(("at", (“obj13"), (“pos1"))), true)).

initialState(variable(("at", (“tru2"), (“pos2"))), value(variable(("at", (“tru2"), (“pos2"))), true)).

initialState(variable(("at", (“obj21"), (“pos2"))), value(variable(("at", (“obj21"), (“pos2"))), true)).

initialState(variable(("at", (“obj22"), (“pos2"))), value(variable(("at", (“obj22"), (“pos2"))), true)).

initialState(variable(("at", (“obj23"), (“pos2"))), value(variable(("at", (“obj23"), (“pos2"))), true)).

initialState(variable(("in-city", (“pos1"), (“cit1"))), value(variable(("in-city", (“pos1"), (“cit1"))), true)).

initialState(variable(("in-city", (“apt1"), (“cit1"))), value(variable(("in-city", (“apt1"), (“cit1"))), true)).

initialState(variable(("in-city", (“pos2"), (“cit2"))), value(variable(("in-city", (“pos2"), (“cit2"))), true)).

initialState(variable(("in-city", (“apt2"), (“cit2"))), value(variable(("in-city", (“apt2"), (“cit2"))), true)).



|  |  |  |
| --- | --- | --- |
| (("apn1"),("fly-airplane", (“apn1"),(“apt2"),(“apt1")),1).  (("apn1"),("fly-airplane",  (“apn1"),(“apt1"),(“apt2")),2).  (("apn1"),("fly-airplane",  (“apn1"),(“apt2"),(“apt1")),3).  (("apn1"),("fly-airplane",  (“apn1"),(“apt1"),(“apt2")),4).  (("apn1"),("load-airplane",  (“obj23"),(“apn1"),(“apt2")),5).  (("apn1"),("load-airplane",  (“obj21"),(“apn1"),(“apt2")),6).  (("apn1"),("fly-airplane",  (“apn1"),(“apt2"),(“apt1")),7).  (("apn1"),("unload-airplane",  (“obj21"),(“apn1"),(“apt1")),8).  (("apn1"),("unload-airplane",  (“obj23"),(“apn1"),(“apt1")),9).  (("apn1"),("load-airplane",  (“obj13"),(“apn1"),(“apt1")),10).  (("apn1"),("unload-airplane",  (“obj13"),(“apn1"),(“apt1")),11).  (("apn1"),("load-airplane",  (“obj13"),(“apn1"),(“apt1")),12).  (("apn1"),("unload-airplane",  (“obj13"),(“apn1"),(“apt1")),13). | (("tru1"),("load-truck",  (“obj13"),(“tru1"),(“pos1")),2).  (("tru1"),("load-truck",  (“obj11"),(“tru1"),(“pos1")),3).  (("tru1"),("drive-truck",  (“tru1"),(“pos1"),(“apt1"),(“cit1")),4).  (("tru1"),("unload-truck",  (“obj11"),(“tru1"),(“apt1")),5).  (("tru1"),("unload-truck",  (“obj13"),(“tru1"),(“apt1")),6).  (("tru1"),("drive-truck",  (“tru1"),(“apt1"),(“pos1"),(“cit1")),7).  (("tru1"),("drive-truck",  (“tru1"),(“pos1"),(“apt1"),(“cit1")),8).  (("tru1"),("load-truck",  (“obj21"),(“tru1"),(“apt1")),9).  (("tru1"),("load-truck",  (“obj23"),(“tru1"),(“apt1")),10).  (("tru1"),("drive-truck",  (“tru1"),(“apt1"),(“pos1"),(“cit1")),11).  (("tru1"),("unload-truck",  (“obj21"),(“tru1"),(“pos1")),12).  (("tru1"),("unload-truck",  (“obj23"),(“tru1"),(“pos1")),13). | (("tru2"),("load-truck",  (“obj23"),(“tru2"),(“pos2")),1).  (("tru2"),("load-truck",  (“obj21"),(“tru2"),(“pos2")),2).  (("tru2"),("drive-truck",  (“tru2"),(“pos2"),(“apt2"),(“cit2")),3).  (("tru2"),("unload-truck",  (“obj23"),(“tru2"),(“apt2")),4).  (("tru2"),("unload-truck",  (“obj21"),(“tru2"),(“apt2")),5).  (("tru2"),("drive-truck",  (“tru2"),(“apt2"),(“pos2"),(“cit2")),6).  (("tru2"),("load-truck",  (“obj22"),(“tru2"),(“pos2")),12). |