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Exercise: STRIPS Planning

Imagine a world with 3 rooms. Room R1 and R2 are connected by a door D1. Room R2 and R3 are connected by a door D2. Initially, the robot ROBOT stands in room R1. There is a box BOX1 in Room R2.

There are two possible actions for the robot: GOTHRU and PUSHTHRU, which are modelled as follows:

GOTHRU(d,r1,r2):
- Precondition INROOM(ROBOT,r1) and CONNECTS(d,r1,r2)
- Delete List: INROOM(ROBOT,r1)
- Add List: INROOM(ROBOT,r2)

PUSHTHRU(b,d,r1,r2):
- Precondition: INROOM(b,r1) and BOX(b) and INROOM(ROBOT,r1) and CONNECTS(d,r1,r2)
- Delete List: INROOM(ROBOT,r1), INROOM(b,r1)
- Add List: INROOM(ROBOT,r2) and INROOM(b,r2)

The initial world state / knowledge base of the robot is modelled as follows:

INROOM(ROBOT,R1)
CONNECTS(D1, R1,R2)
CONNECTS(D2,R2,R3)
BOX(BOX1)
INROOM(BOX1,R2)

Now apply the **Goal Stack Planning** Algorithm in order to let the algorithm generate a plan to achieve the goal INROOM(BOX1,R1)

I.e., which sequence of robot actions will achieve this goal and (more important) how does the Goal Stack Planning Algorithm come to this solution?