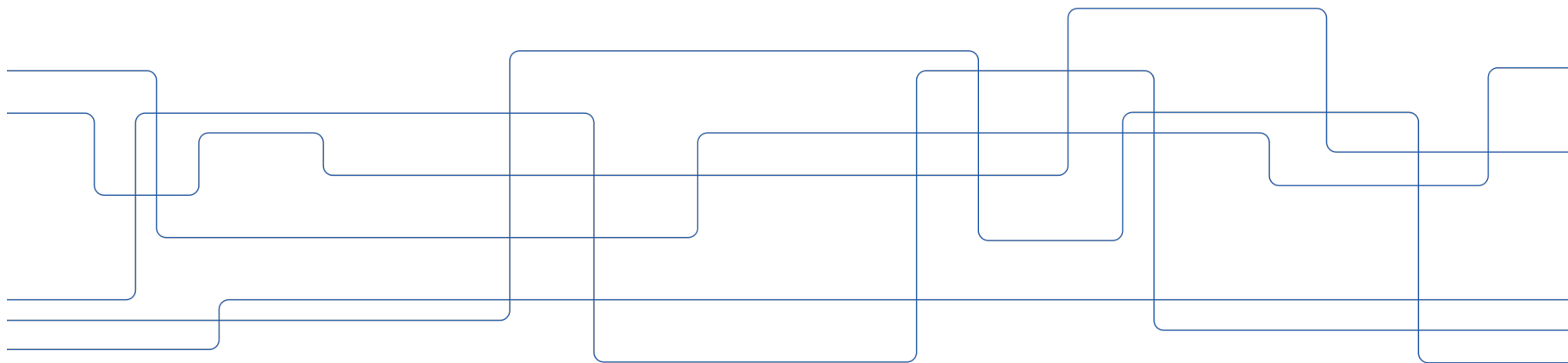




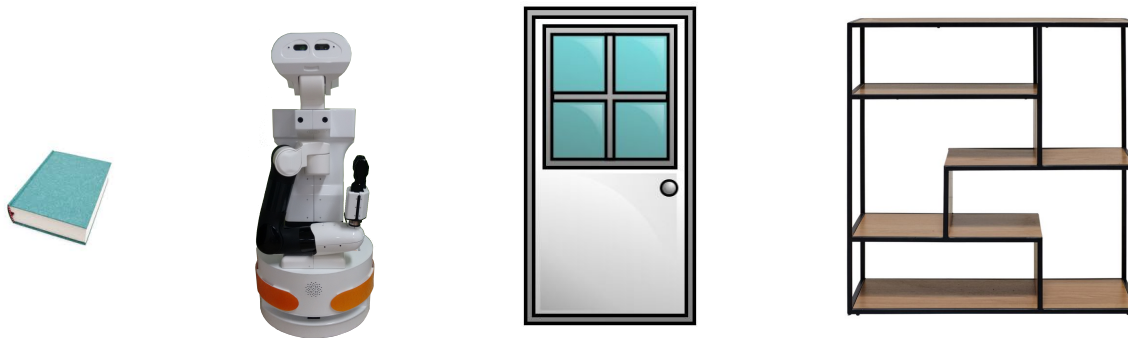
Tutorial on planning

DD2380 HT 2020



Planning domain definition language (PDDL)

- Example- Our robot needs to place the book on the shelf in the other room:



- To express this problem in PDDL we need:
 1. A planning **domain**: What are the relevant predicates? What are the relevant action
 2. An **instantiation** of the problem: What is the initial state of the problem? What is the goal of problem?



Using the online planner

- Let's go to the online planner: <http://editor.planning.domains/>



Logical expressions – Tiny Puzzle

- Who is wearing white?
 - There are three detectives: Peralta, Diaz, and Holt
 - Each detective is wearing a unique color: green, white, or blue.
 - Each detective drinks a unique beverage: tea, coffee, or milk
 - Peralta is wearing blue.
 - The detective who wears green, drinks coffee.
 - Diaz drinks tea.
- Solve with resolution!

$$\frac{X1: A \vee C, X2: B \vee \neg C}{X3: A \vee B}$$



Logical expressions – SWISH! prolog

- Let's try and program the puzzle with SWISH: <https://swish.swi-prolog.org>
- Quick reference:
 - Implication is written as “:-”
 - Variables start with upper-case, following letters should be lower-case
 - Functions, lists and constants are only lower-case
 - A list can be defined as: `mylist(My) :-`
 - `length(My,3)` says that the length of the list `My` is 3
 - `member(detective(peralta,_,blue), My)` says that `My` has a member which that is a 3-tuple of type `detective` with given first and third attribute and arbitrary second attribute.