TDDC17 ARTIFICIAL INTELLIGENCE

Lab 3: Bayesian Networks

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Task 1

We have chosen to model Shakey's domain. In the domain we have the following six different objects:

- **box**: a box that Shakey can push between connected rooms.
- **switch**: a light switch that can be turned on or off.
- **room**: a room where a light switch, object, box or Shakey can be.
- **shakey**: Shakey the robot.
- **object**: a small object that Shakey can hold.
- **gripper**: a gripper that Shakey can use to hold a small object.

We also have the following nine predicates:

- **adjacent**: specifies wether two rooms are connected.
- **wide-entrance**: specifies wether the two rooms that are connected have a wide door.
- **box-at**: specifies if a specific box is in a specific room.
- **shakey-at**: specifies if Shakey is in a specific room.
- **switch-at**: specifies if a specific light switch is in a specific room.
- **object-at**: specifies if a specific small object is in a specific room.
- **light**: specifies wether a specific room is lit.
- **holding**: specifies if a specific gripper holds a specific small object.
- **empty**: specifies if a specific gripper is not holding anything.

Finally we have the following seven actions:

- **move**: moves Shakey from one room to another if Shakey is in the first room and there is a door between the rooms.
- **lights-on**: Shakey turns on the lights in a room if there is a box and a light switch in the room.
- **turn-light-off**: Shakey turns the lights off in a room if there is a box and a light switch in the room.
- **move-box**: Shakey moves a box from one room to another.
- **pick-up**: Shakey picks up a small object in one of its grippers.
- **put-down**: Shakey puts down a small object from one of its grippers.