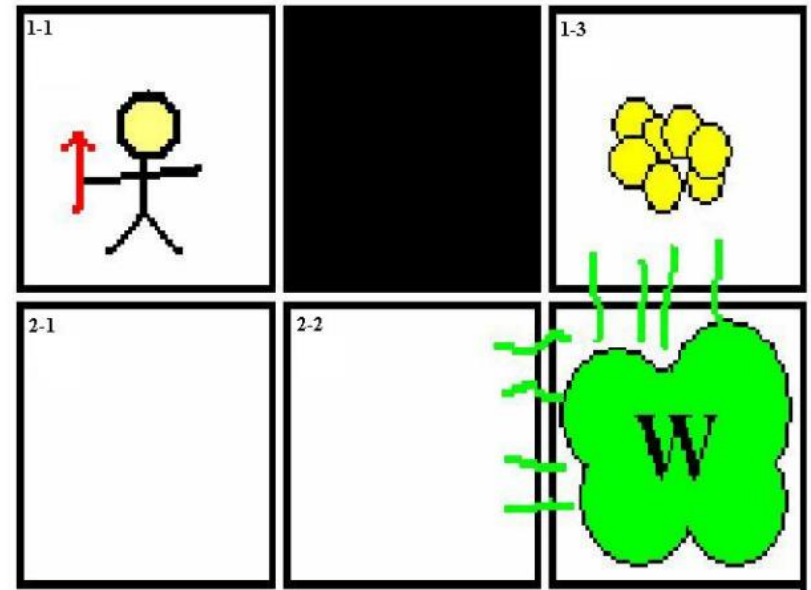


The Wumpus World

STRIPS

An agent can move between squares and collect gold if any in the same square. Some of the square are not 'walkable' as there is a pit, and a wumpus is hiding in one of the squares.

The agent can shoot at the wumpus with an arrow if they are in the adjacent squares. Of course, the agent cannot move in the same square of the wumpus (if he is alive), otherwise he will die.



Objects: 6 squares, 1 gold, 1 agent, 1 arrow, 1 wumpus

Predicates: gold(x), agent(x), wumpus(x), dead(x), at(x,y), etc.

Initial state: as in Fig

Goal specification: the agent must collect the gold and return to the initial position

Actions/Operators: the agent can move between squares, collect gold, shoot an arrow

The Wumpus World

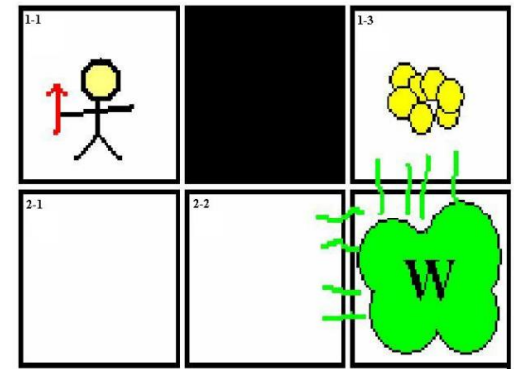
STRIPS: Domain File

```
(define (domain wumpus-c)
  (:predicates (at ?what ?square) (adj ?square-1 ?square-2)
    (pit ?square) (wumpus-in ?square) (have ?who ?what)
    (is-agent ?who) (is-wumpus ?who) (is-gold ?what) (is-arrow ?what) (dead ?who) )
```

```
(:action move
  :parameters (?who ?from ?to)
  :precondition (and (is-agent ?who) (at ?who ?from) (adj ?from ?to) (not (pit ?to)) (not (wumpus-in ?to)))
  :effect (and (not (at ?who ?from)) (at ?who ?to)))
```

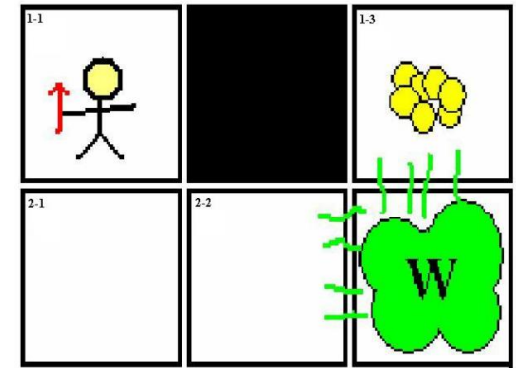
```
(:action take
  :parameters (?who ?what ?where)
  :precondition (and (is-agent ?who) (at ?who ?where) (at ?what ?where))
  :effect (and (have ?who ?what) (not (at ?what ?where))))
```

```
(:action shoot
  :parameters (?who ?where ?with-what ?victim ?where-victim)
  :precondition (and (is-agent ?who) (have ?who ?with-what) (is-arrow ?with-what) (at ?who ?where) (is-wumpus ?victim) (at ?victim ?where-victim) (adj ?where ?where-victim))
  :effect (and (dead ?victim) (not (wumpus-in ?where-victim)) (not (have ?who ?with-what)))))
```



The Wumpus World

STRIPS: Problem File



```
(define (problem wumpus-c-1)
  (:domain wumpus-c)
  (:objects s-1-1 s-1-2 s-1-3 s-2-1 s-2-2 s-2-3 gold-1 arrow-1 agent
    wumpus)

  (:init (adj s-1-1 s-1-2) (adj s-1-2 s-1-1) (adj s-1-2 s-1-3) (adj s-1-3 s-
    1-2) (adj s-2-1 s-2-2) (adj s-2-2 s-2-1) (adj s-2-2 s-2-3) (adj s-2-3 s-
    2-2) (adj s-1-1 s-2-1) (adj s-2-1 s-1-1) (adj s-1-2 s-2-2) (adj s-2-2 s-
    1-2) (adj s-1-3 s-2-3) (adj s-2-3 s-1-3) (pit s-1-2) (is-gold gold-1) (at
    gold-1 s-1-3) (is-agent agent) (at agent s-1-1) (is-arrow arrow-1)
    (have agent arrow-1) (is-wumpus wumpus) (at wumpus s-2-3)
    (wumpus-in s-2-3))

  (:goal (and (have agent gold-1) (at agent s-1-1)))
)
```