

Wumpus World Predicate Logic Activity

Setup

Percepts: BREEZE(t), GLITTER(t), BUMP(t), SCREAM(t), STENCH(t)

Actions: SHOOT(t), FORWARD(t), CLIMB(t), GRAB(t), TURN(d, t)

Other predicates:

- LOC(x, y, t) – true if adventurer is in column x , row y at time t
- WUMPUSDEAD(t) – true if the Wumpus is dead at time t
- WUMPUSLOC(x, y, t) – true if the Wumpus is in column x , row y at time t
- HAVEARROW(t) – true if the adventurer has the arrow at time t
- HAVEGOLD(t) – true if the adventurer has the gold at time t
- FACING(d, t) – true if the adventurer is facing in direction d (N, W, E, or S) at time t
- PIT(x, y) – true if there is a pit at column x , row y
- WIN(t) – true if the player has won the game at time t
- LOSE(t) – true if the player has died a bloody death at time t
- SAFE(x, y, t) – true if it would be safe for the adventurer to move to column x , row y at time t

(Incomplete) KB

1. $\forall x, y, t \text{ BREEZE}(t) \wedge \text{LOC}(x, y, t) \Rightarrow$

2. $\forall x, y, t \text{ SAFE}(x, y, t) \Leftrightarrow$

3. $\forall x, y, t \text{ WUMPUSLOC}(x, y, t) \Leftrightarrow$

4. $\forall t \text{ HAVEARROW}(t + 1) \Leftrightarrow$

5. $\Leftrightarrow \text{WUMPUSDEAD}(t + 1)$

6. $\Leftrightarrow \text{HAVEGOLD}(t + 1)$

7. $\Leftrightarrow \text{WIN}(t + 1)$

8. $\forall x, y, t \text{ LOC}(x, y, t + 1) \Leftarrow$