Stephen's solution to Wumpus World Activity

1. $\forall x, y, t\ \textsc{Breeze}(t) \wedge \textsc{Loc}(x, y, t) \Rightarrow \textsc{Pit}(x, y+1) \vee \textsc{Pit}(x, y-1) \vee \textsc{Pit}(x+1, y) \vee \textsc{Pit}(x-1, y)$

2. $\forall x, y, t\ \textsc{Safe}(x, y, t) \Leftrightarrow \neg\ \textsc{Pit}(x, y) \wedge (\neg\ \textsc{WumpusLoc}(x, y, t) \vee \textsc{WumpusDead}(\mathrm{t}))$

3. $\forall x, y, t\ \textsc{WumpusLoc}(x, y, t) \Leftrightarrow \textsc{WumpusLoc}(x, y, t+1)$

4. $\forall t\ \textsc{HaveArrow}(t+1) \Leftrightarrow \textsc{HaveArrow}(t) \wedge \neg\ \textsc{Shoot}(t)$

5. $(\exists p < t+1\ \textsc{Scream}(p)) \Leftrightarrow \textsc{WumpusDead}(t+1)$

6. $\textsc{HaveGold}(t) \vee (\textsc{Glitter}(t) \wedge \textsc{Grab}(t)) \Leftrightarrow \textsc{HaveGold}(t+1)$

7. $\textsc{Loc}(1, 1, t) \wedge \textsc{HaveGold}(t) \wedge \textsc{Climb}(t) \Leftrightarrow \textsc{Win}(t+1)$

8. $\forall x, y, t\ \textsc{Loc}(x, y, t+1) \Leftarrow$
   $\textsc{Loc}(x, y+1, t) \wedge \textsc{Facing}(\text{South}, t) \wedge \textsc{Forward}(t) \wedge \neg\ \textsc{Bump}(t+1) \vee$
   $\textsc{Loc}(x, y-1, t) \wedge \textsc{Facing}(\text{North}, t) \wedge \textsc{Forward}(t) \wedge \neg\ \textsc{Bump}(t+1) \vee$
   $\textsc{Loc}(x+1, y, t) \wedge \textsc{Facing}(\text{West}, t) \wedge \textsc{Forward}(t) \wedge \neg\ \textsc{Bump}(t+1) \vee$
   $\textsc{Loc}(x-1, y, t) \wedge \textsc{Facing}(\text{East}, t) \wedge \textsc{Forward}(t) \wedge \neg\ \textsc{Bump}(t+1) \vee$
   $\textsc{Loc}(x, y, t) \wedge \textsc{Forward}(t) \wedge \textsc{Bump}(t+1) \vee$
   $\textsc{Loc}(x, y, t) \wedge \neg\ \textsc{Forward}(t)$