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;  
; Modelling the Wumpus World in PDDL: using ADL...  
; by: Patrik Haslum  
; Source web page:  
;   http://users.cecs.anu.edu.au/~patrik/pddlman/wumpus.html  
;  
  
(define (domain wumpus-adl)  
  (:requirements :adl :typing)  
  
  ;; object types  
  (:types agent wumpus gold arrow square)  
  
  (:predicates  
    (adj ?square-1 ?square-2 - square)  
    (pit ?square - square)  
    (at ?what ?square)  
    (have ?who ?what)  
    (alive ?who))  
  
  (:action move  
    :parameters (?who - agent ?from - square ?to - square)  
    :precondition (and (alive ?who)  
                        (at ?who ?from)  
                        (adj ?from ?to)  
                        )  
    :effect (and (not (at ?who ?from))  
                 (at ?who ?to)  
  
                 (when (pit ?to)  
                       (and (not (alive ?who))))  
  
                 (when (exists (?w - wumpus) (and (at ?w ?to) (alive ?w)))  
                       (and (not (alive ?who))))  
                )  
  
  (:action take  
    :parameters (?who - agent ?where - square ?what)  
    :precondition (and (alive ?who)  
                        (at ?who ?where)  
                        (at ?what ?where))  
    :effect (and (have ?who ?what)  
                 (not (at ?what ?where)))  
    )  
  
  (:action shoot  
    :parameters (?who - agent ?where - square ?with-arrow - arrow  
                ?victim - wumpus ?where-victim - square)  
    :precondition (and (alive ?who)  
                        (have ?who ?with-arrow)  
                        (at ?who ?where)  
                        (alive ?victim)  
                        (at ?victim ?where-victim)  
                        (adj ?where ?where-victim))  
    :effect (and (not (alive ?victim))  
                 (not (have ?who ?with-arrow)))  
    )  
)
```

```
(define (problem wumpus-adl-1)
  (:domain wumpus-adl)

  (:objects
    sq-1-1 sq-1-2 sq-1-3 sq-2-1 sq-2-2 sq-2-3 - square
    the-gold - gold
    the-arrow - arrow
    agent-1 - agent
    wumpus-1 - wumpus)

  (:init (adj sq-1-1 sq-1-2) (adj sq-1-2 sq-1-1)
         (adj sq-1-2 sq-1-3) (adj sq-1-3 sq-1-2)
         (adj sq-2-1 sq-2-2) (adj sq-2-2 sq-2-1)
         (adj sq-2-2 sq-2-3) (adj sq-2-3 sq-2-2)
         (adj sq-1-1 sq-2-1) (adj sq-2-1 sq-1-1)
         (adj sq-1-2 sq-2-2) (adj sq-2-2 sq-1-2)
         (adj sq-1-3 sq-2-3) (adj sq-2-3 sq-1-3)
         (pit sq-1-2)
         (at the-gold sq-1-3)
         (at agent-1 sq-1-1)
         (alive agent-1)
         (have agent-1 the-arrow)
         (at wumpus-1 sq-2-3)
         (alive wumpus-1))

  (:goal (and (have agent-1 the-gold) (at agent-1 sq-1-1) (alive agent-1)))
)
```