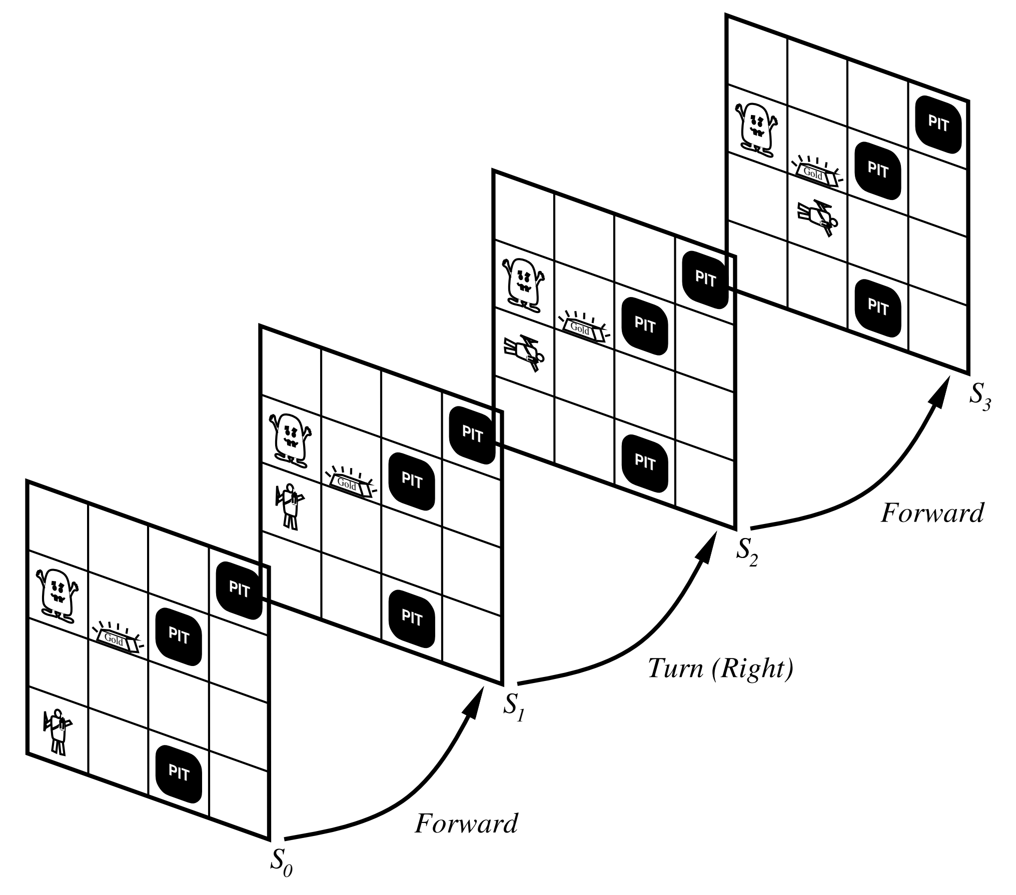

Figure 7.3 In situation calculus, the world is a sequence of situations linked by actions.

Actions are described by stating their effects. That is, we specify the properties of the situation that results from doing the action. Suppose, for example, that the agent wants to keep track of whether it is holding the gold. The description should state that, in any situation, if gold is present and the agent does a grab, then it will be holding the gold in the resulting situation. We write this in such a way as to apply to any portable object:

$$Portable(Gold)$$
$$\forall s \;\; AtGold(s) \Rightarrow Present(Gold, s)$$
$$\forall x, s \;\; Present(x, s) \land Portable(x) \Rightarrow Holding(x, Result(Grab, s))$$

A similar axiom says that the agent is not holding anything after a *Release* action:

$$\forall x, s \;\; \neg Holding(x, Result(Release, s))$$

EFFECT AXIOMS

These axioms are called **effect axioms**. Unfortunately, they are not sufficient to keep track of whether the agent is holding the gold. We also need to say that if the agent is holding something