d What are the three parts of a transition label? Which parts have to be present?

e What is a self-transition on a state?

f Why must the guards relating to the same event coming out of a state be mutually exclusive?

g When do you need to include a superstate on a state diagram?

h For what types of system are state diagrams generally most useful?

Exercises

7.1 Burglar alarm.

a When new, a burglar alarm is in a Resting state, and while it is in this state, the alarm may be set. This event moves the alarm into a Set state. While in the set state, the alarm may be turned off, and so returns to the Resting state. Draw a state diagram for the Burglar Alarm class.

b While in the Set state, the alarm may be triggered; this moves it into the Ringing state. From here the alarm may be turned off, and so return to the Resting state. Amend the state diagram you drew in (a) to include this information.

c The alarm may break at any time. Include this information on the diagram using a superstate.

7.2 Estate agent's property.

Figure 7.15 is a state diagram of a property in an estate agent's system. Study the diagram and then briefly describe in clear English what can happen to a property during its life in the system.

NB The superstate in this diagram is slightly different from those in the diagrams in the chapter in that it does not apply to all the states. You should be able to see from the diagram when the vendor can take the property off the market and when this is no longer possible.

7.3 Simple microwave oven.

When new, a microwave oven is initially off. From this state the cooking time may be set and the oven turned on. While the microwave is on, the time can be changed. When the time is up, the microwave turns itself off and gives three