Table 7.5: Events and states for objects of the Bike class

Event	*State*
	start state
bike purchased	New bike
bike number is assigned	Available for hire
customer hires bike	On hire
customer returns bike	Available for hire
minor damage to bike	Under repair
major damage to bike	stop state
bike repaired	Available for hire
bike lost or stolen	stop state
bike sold	stop state
bike scrapped	stop state

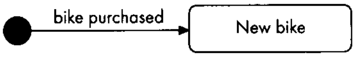

Figure 7.8 First stage of the state diagram for the Bike class

damage to bike' and 'major damage to bike' will be represented as one event, 'bike damaged', with guards [reparable] (leading to the 'Under repair' state) and [irreparable] (leading to a stop state).

Figure 7.9 shows the intermediate diagram representing events and states, but without any actions.

The next stage is to check whether we need to include a superstate to cater for events that can occur at any stage in the life of an object. In this example 'bike lost or stolen' is such an event, so we represent this event by a transition from a superstate to a stop state.

Finally, we need to consider whether any actions should be included on the state transitions. For this we will need to look at Chapter 2 again. We discover that the events 'bike damaged/[reparable]' and 'bike damaged/[irreparable]' both have an action 'extra charge to customer', so this action should be added to the relevant transition labels on the diagram.

The completed state diagram for the Bike class is shown in Figure 7.10. This should now be validated against all the information that we have gathered about the behaviour of objects of the Bike class.