A Job Application object is created when an application form is received and the details recorded. The application will then be read by the manager and may be shortlisted or rejected. If rejected, the application is filed for six months. At the end of this time it is discarded. If it is shortlisted, interview details are sent out and the interview is usually confirmed by the applicant. Once the interview has taken place, the applicant may not be successful; in this case a rejection letter is sent and the application is filed for six months and then discarded. If the applicant is offered the job, an offer letter is sent. If the offer is rejected by the applicant the application is filed for six months, and then discarded; if accepted, the application terminates and other procedures take over. The applicant may withdraw at any time during the application process.

In order to draw a state diagram, we need to sort out the events that can occur and the different states that a Job Application object can be in (see Table 7.4). An object always begins life in the start state, before anything happens to it.

We can see from the list that this diagram will be more complex than the previous BankAccount example, as it not only has more states, but there are three different ways in which a stop state may be reached. Multiple stop states are common in state diagrams, as the way an object ends its life will depend on the specific series of events that it undergoes. In contrast, there is only ever one start state on a state diagram, as all objects of a class are created in the same way.

A number of the events that appear separately in the list are actually the same event, but with different conditions, for example the 'read by manager' event has the conditions 'rejected' and 'shortlisted'. These conditions will be represented in the state diagram in square brackets in the guard section of the relevant transition labels.

We should also check at this stage to see if there are any actions that the system has to perform in response to an event. These will be included in the labels on the relevant transitions. In the Job Application example there are two actions, 'send rejection letter' and 'send offer letter'.

We start to construct the state diagram by beginning with the start state, the event that creates a Job Application object, and the state that the object moves into. Figure 7.4 shows the first stage of the diagram.

We can build up the diagram by deciding what events can happen to a Job Application object while it is in the 'Application logged' state and adding them. Figure 7.5 shows the next stage in the process.