

## Chapter 11. Object Animation

Here I will cover the basics of combining Blender's animation system with the game engine. The animation curves (Ipos) in Blender are fully integrated and give you full control of animations both in conventional (linear) animation and in the interactive 3-D graphics covered by this book.

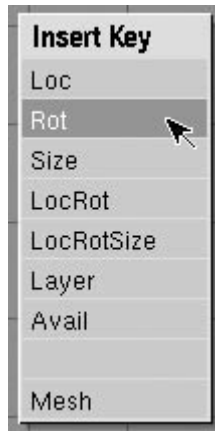
Use **SHIFT-F1** or use the FileMenu "Append". Browse to book-CD, choose **Tutorials/Pumpkinrun/Door.blend**, click on Object, select all objects with **AKEY**, confirm with **ENTER**. This will append a wall with a wooden door to the scene. The pumpkin will bump against the walls and the door. The collision detection is handled by the Blender game engine automatically.

Switch the right 3DWindow to a TopView (**PAD7**) and zoom (**PAD+ or PAD-**) as needed to see the appended door completely. The door has the name and the axis enabled, so it should be visible. Select the door with **RMB** (it will turn pink).

We will now make a simple key frame animation:



1. Ensure that the FrameSlider (the current animation frame) is at frame 1 by pressing **SHIFT-LEFTARROW**



2. **IKEY**, select "Rot" from the menu

3. Now advance the animation time by pressing **CURSORUP** five times to frame 51. With the game engine playing 50 frames per second our animation will play now 2 seconds.

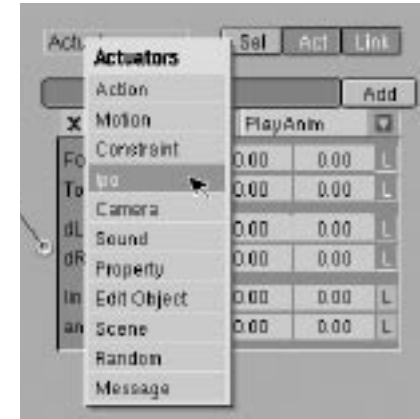
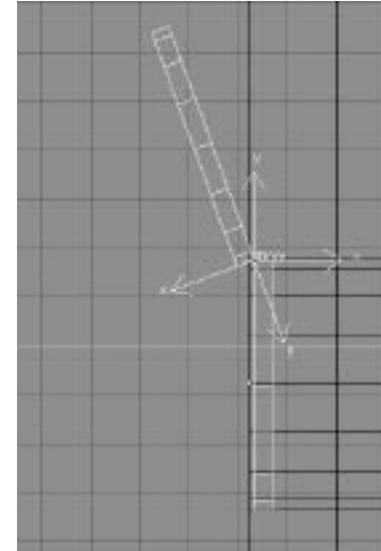
4. Press **RKEY** (be sure to have your mouse over the TopView) and rotate the door 150° clockwise. You can see the degree of rotation in the Header of the 3DWindow. To make it easier to rotate exactly, hold **CTRL** while rotating.

5. Now insert a second key by pressing **IKEY** and again choosing "Rot"

6. Move to frame 1 by pressing **SHIFT-LEFTARROW** and press **SHIFT-ALT-A**, you will see the animation of the door being played back. After 51 frames the animation will run to frame 250 and then repeat.

7. Press **ESC** to stop the playing animation.

Figure 11-1. Rotating the door



With the door still selected switch the ButtonsWindow to the RealtimeButtons, by pressing **F8**. Add a Sensor, Controller and Actuator, wire them, name them (see Chapter 8), change the Sensor to a Keyboard Sensor and change the Actuator to "Ipo" type.

Change the type of the Ipo Actuator to "Ping Pong" mode using the MenuButton. **SHIFT-LMB** "Sta" and change the value to "1", then change "End" to "51" (see Figure 11-2). This way the Ipo Actuator plays the door animation from frame 1 to 51 which opens the door. A new invocation of the Ipo Actuator will then close the door (because of playing it "Ping Pong").

Figure 11-2. LogicBricks for playing an Ipo in "Ping Pong" mode



Play the scene (**PKEY**) in the textured view, and the door will now open and close when you press **SPACE** and can push the actor around if he gets hit by the door. To visualize the animation curves (Ipos) switch one window to an IpoWindow by pressing **SHIFT-F6**, see Section 24.2.