Lights Camera Action!
Part 3: BDE Events

By Deborah Nelson
under the direction of Professor Susan Rodger
Duke University
July 2008
Updates made June 2014 by Yossra Hamid
Part 1: Setting up the World

Create a new world, with a water template. Save it in a directory that you can find again. After you have saved the file go into the "Layout" mode by clicking on the green button Add Object

Click more controls. Click drop a dummy at the camera. In the object tree, right click on ‘dummy’ in the Dummy Objects folder. Rename the dummy 'originalPosition'.
In the gallery below, click on the Ocean Folder and add an instance of a Fish and Shark into the world.

Use the object placement tools on the right to position your fish and shark as shown. They should be halfway down in the water.

Click done to go back to the main window.
Part 2: Writing sharkChase

Create a new method called `sharkChase`.

Into `sharkChase` drag and drop code to have the shark turn and face the fish and then move towards it. Edit the duration and style as shown.
Click on create new event. Select while something is true.

This will create a BDE event. A BDE event is a while loop with three parts inside the loop: **Begin**, **During**, and **End**

The while portion of the loop contains a conditional. This is how you control when the event will happen.

The **Begin** will happen the first time the conditional is true. The **During** will happen while the conditional is true. The **End** will happen when the conditional is no longer true. This tutorial will show you how each of those aspects works using the shark and fish.
Part 3: The Conditional

The first step in writing a BDE is the conditional. We want this loop to run while the shark is more than one meter away from the fish.

Click on world in the object tree and go to the functions pane. Drag a > b on top of the <None> and select 1 to serve as a placeholder for both.
Click on shark in the object tree and go to the functions tab.

Drag the shark distance to function on top of the first 1 in the conditional, select fish.
The first time this while loop is passed we want the shark to say “where are you?”. This will go into the begin portion of the BDE.

Go to the shark’s methods and drag shark say into the nothing besides ‘Begin:’ in the BDE event. Select other… and then type in ‘where are you?’ and select OK.
Every time the while loop is passed, we want the `sharkChase` method to be called.

Click on `world` in the object tree and click on the methods tab.

Drag `world.sharkChase` onto the Nothing beside ‘During:’.
The very last time the while loop is passed, when the shark is just over 1 meter away from the fish, we want the shark to say: “gotcha!”

Drag the shark say method on top of the Nothing beside End:.

Select other… and type in “gotcha!” Click OK.
Part 7: Resetting the Event

Play your world.

You can see the events play out from beginning to end but the while loop only happens once. Let’s create a way to reset the conditional so that the whole BDE can be done again.

Click on create new event and select Let the mouse move <objects>
Click on Any Object and select create new list.
Part 7: Resetting the Event

Name the list `animal` and select the type `Object`.

Add a new item, set it to `fish` and click OK.

Now when you play your world, after the shark says Gotcha, click the fish and move it around the screen. When you let go, the BDE loop will happen again. You can do this again and again to trigger the BDE.
Click on world in the object tree and go to the method pane. Create a new method and name it fishCircle.

Drag in a wait for one second. Inside a Do together put in a Do in order and two fish turn calls, the first to turn left \(\frac{1}{4}\) revolution, the second to turn left one full revolution as seen by the shark. At the bottom of the do together, outside the do in order, drag in fish say and type in don’t eat me!
Create a new BDE event by going to the event editor and clicking on create new event. Select while something is true.

An empty BDE should appear in the events editor. Right click it and select change to, When something becomes true.

This event is useful because sometimes, we only want something to happen once instead of called again and again in a loop. This sort of event will do that.
Part 9: When something becomes true

Like with the BDE, the when something becomes true event has a conditional.

Drag in \(a > b\) from the world functions pane, select 1 for both a and b.

Drag in the shark distance to function from the shark function pane onto the second 1.

From the world methods pane drag in fishCircle over Nothing.
Review of BDE

Play your world to see the new event take place. Notice that even though the conditional is still true after the fish swims around the shark, the event kicks in only once.

Let’s review. BDE is a type of while loop:
- The Begin will only occur the first time through the loop
- The During occurs every time the while loop is being iterated through
- The End will only occur the last time through the loop

In your world, it is useful to have something to reset the conditional of your BDE. Or, you can change your BDE to when something is true where you don’t need a loop, then it only happens once.

Congratulations! You have finished this tutorial. Continue experimenting with BDE events to see the many different ways they can be used in Alice!