

Dragging and Dropping: Distance Relationships Between Objects



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direction of Professor Susan
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Introduction

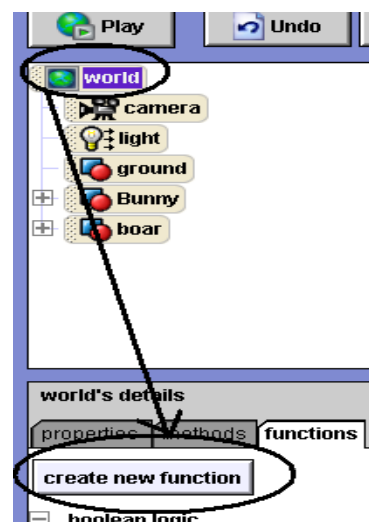
- This tutorial will demonstrate how to use a tool called a “Function” in Alice, to tell if one object is relatively close to another object.
- In order to do this we will build a simple world and a simple function to tell if two objects are on top of each other.

Building the World

- To set up this world, you can either download it off the repository or build it from scratch.
- To build it simply choose a grass scene, in Alice and add a bunny and a boar from the Web gallery.

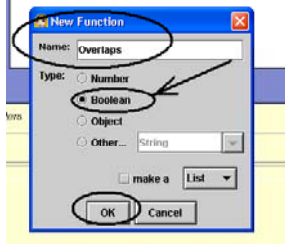


Writing the function



- The first thing that we need to do is create a function in world.
- Click on world and then the functions tab
- Click on the gray “Create new function” button.

Writing the function

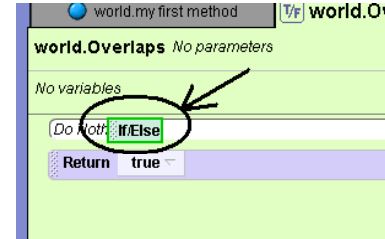


- We are going to name this one “overlaps.”
- Make sure you select the Boolean type.

- After you write the name a green box should appear on your screen that looks like this.



Writing the function

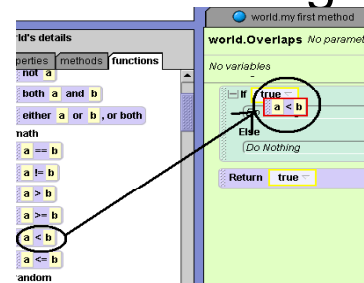


- Next we need to drag an if/else statement into the place that currently says “do nothing.”

- Now your screen should look like this.



Writing the function

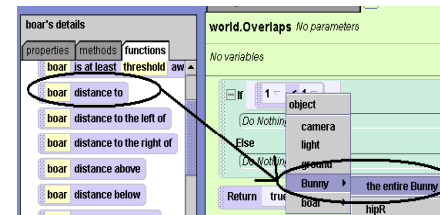


- Now lets go to world level functions and drag the a<b tab over from the logic column.

- Just pick any numbers for A and B, they are simply place holders.
- Your screen should now look like this.

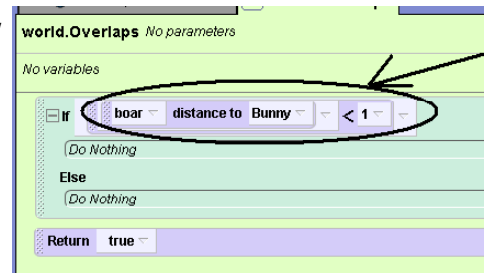


Writing the function

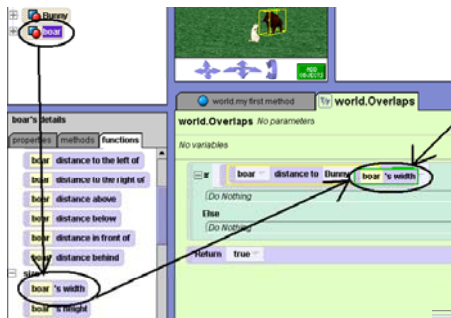


- For the first number we are going to go to the boar's functions and choose “boar distance to” bunny.

- Your screen should now look like this.

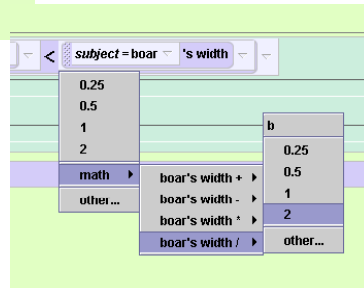


Writing the function



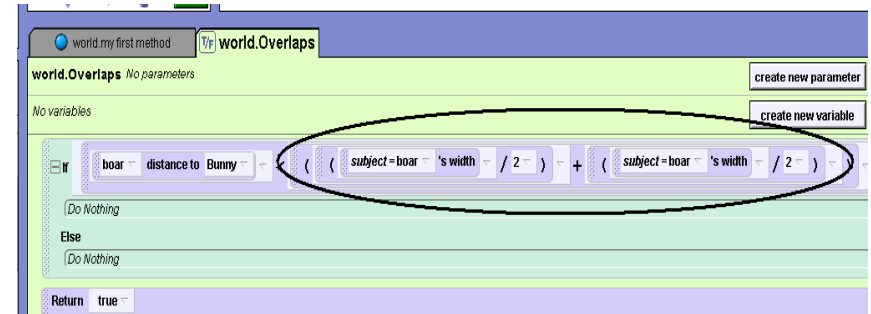
- Now find the function inside of boar's functions labeled "boar's width." Drop on top of the number in the second space.

- Now, click on math and select "/2" to divide the width in half.



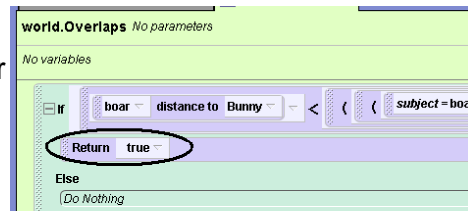
Writing the function

- Now we need to add a plus arrow and do the same expression over again.



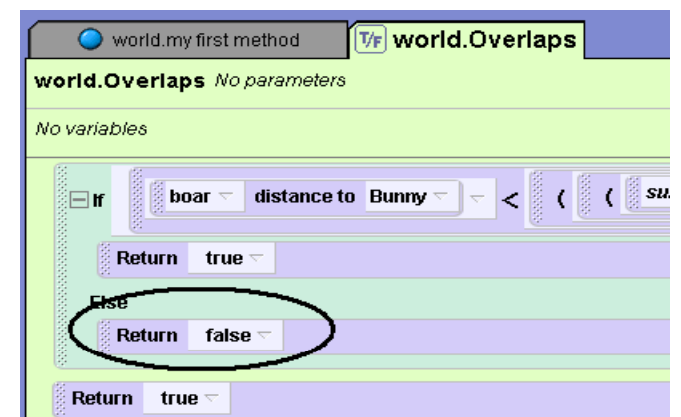
Writing the function

- This function is going to check and see if the boar is closer than the length of the boar's width to the bunny.
- In other words, is the boar on top of the bunny?
- Thus we want to return "true" if the boar is on top of the bunny.
- Add this return function to your code.



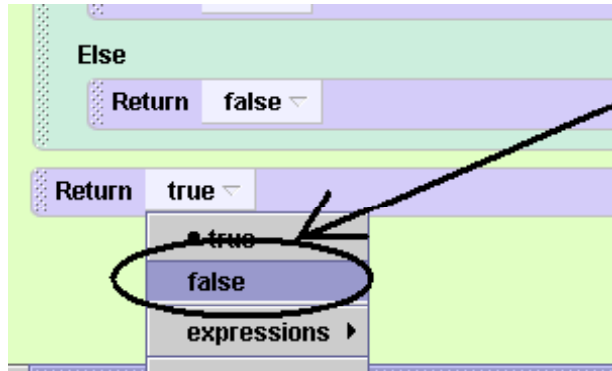
Writing the function

- We will return false in the "else" category.



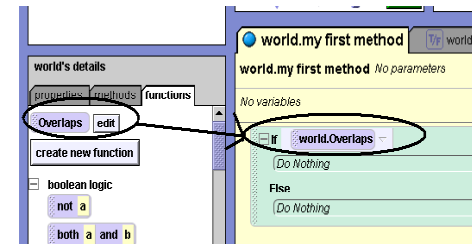
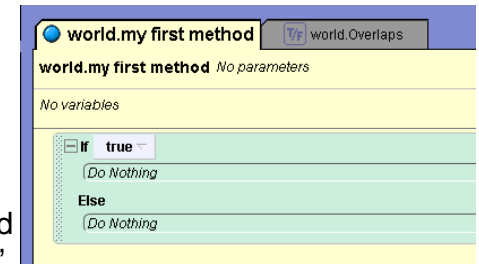
Writing the function

- Finally, lets turn the final return to false.



Testing the function

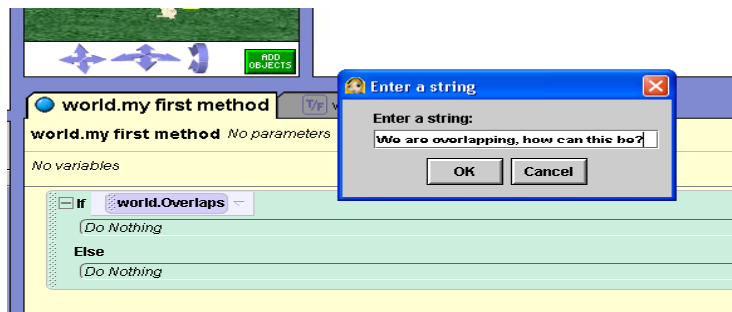
- Now we need to write a method to call this function.
- Lets go into World.myfirstmethod and drop in an "if statement."



- Now drop in your "overlaps" function on top of the "if statement."

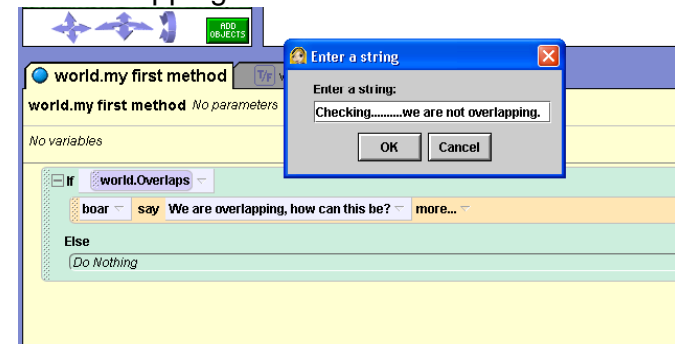
Testing the function

- Now we want the boar to say something.
- Let's have him say, " We are overlapping, how can this be?"



Testing the function

- Now, in the else statement have the boar say, "Checking....we are not overlapping."



Testing the function

- Now play your world.
- Since the boar is next to the bunny he should say “Checking.....we are not overlapping.”



Testing the function

- Now drag the boar on top of your bunny and play it again.
- The boar should say “ we are overlapping, how can this be?”



Finishing up

- You can use functions like this in your Alice worlds to determine if objects in your world are within a certain distance of each other.
- *That's all folks!*