

Intro to Driven Keys

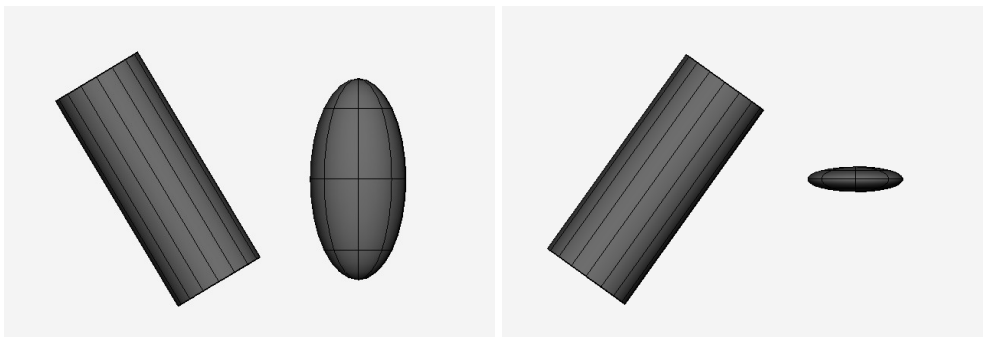
Maya 2012

Concept

- It is possible to make the movement of one object dependent on another
 - This could be done by writing an expression to define this relationship
 - (An expression is some programming code
 - in Maya's MEL language)
- Another way of defining of doing this is to use what Maya calls a “driven key”
 - A driven key is a visual way for the user to create an expression
 - You position the models
 - Maya writes the expression for you
 - Easier and more intuitive than writing expressions
 - (although not as powerful)

A Simple Case: Two Objects

- First, we will make the rotation of a cylinder “drive” the scaling of a sphere



- First, model a cylinder and sphere
- >Animation module
- >Animate >Set Driven Key >Set...
 - You must first define which object is the driver, and which is the driven
 - In one of your modeling windows, select the cylinder
 - In the Set Driven Key window, select
 - >Load Driver >Selected as Driver

- the cylinder under the Driver column
- On the right side, click to select *rotateZ*
 - This will be the cylinder's parameter that drives/controls things
- Back in a modeling window, select the sphere
- In the Set Driven Key window, select
 - >Load Driven >Selected as Driven
 - On the right side, click to select *scaleY*
 - This will be the sphere's parameter that is driven/controlled
- Now we define two key positions
 - These will be the extremes of motion for the driver/driven
 - In one of the modeling windows,
 - rotate the cylinder about -30 around Z
 - scale the sphere about 2 in Y
 - Still in the Driven Key window, hit
 - >Key
 - This relationship between the two objects is saved as one extreme
 - Notice in the Channel Box that the *scaleY* parameter of the sphere is now highlighted
 - to indicate that it is controlled by something else
 - Go back to the modeling window
 - Rotate the cylinder about +30 around Z
 - Scale the sphere back to 1 in Y
 - Go back in the Driven Key window, and hit
 - >Key
 - This saves this second relationship
- To test:
- In the modeling window, select the cylinder.
 - Rotate it around Z
 - As it rotates, the sphere will scale, from 1 to 2
- Save keyframes for the rotation Z of the cylinder

- As the cylinder rotates,
 - the sphere automatically scales in Y

Add a New Attribute to the Driver

- Now we will create a new attribute for the cylinder
 - to drive the translations of the ball
- Select the cylinder
- >Modify >Add Attribute
 - Type in *TransBall* as the name of the attribute
 - >OK
- Notice in the Channel Box,
 - the cylinder now has a new attribute, called *TransBall*
- Back in the Set Driven Key window,
 - Click on Load Driver again
 - to reload the cylinder as the driver
 - Notice it now has the *TransBall* attribute listed
 - Click to select that attribute
 - In the Driven window,
 - click to select the sphere's Translate X,Y and Z attributes
 - >Key
 - to define the first relationship between driver and driven
 - Select the sphere
 - In the channel box,
 - its three translation values are highlighted,
 - to show that they are controlled by something
- Now we will define the second relationship
- Select the cylinder
- In the Channel Box,
 - change the *TransBall* value to 10
- Select the ball and translate it somewhere
- Back in the Set Driven Key window,
 - >Key

- Select the cylinder
- In the Channel Box,
 - Change the value of *TransBall*
 - As this value translates towards 10
 - the ball translates

Drive the Color of the Ball

- Finally, we will make the cylinder's rotation
 - drive the color of the ball
- >Window >Rendering Editors >Hypershade
 - >Create >Materials >Blinn
 - Assign it to the sphere
 - Double-click the Blinn material
 - to open its Attribute Editor
 - Within the Attribute Editor of the Blinn material,
 - >Select
 - (This button is at the bottom left)
 - This makes the Blinn material the currently selected object
- Back in the Set Driven Key window,
 - >Load Driven
 - The Blinn material is now the driven object
 - Click to select its colorR, colorG, colorB attributes
 - Select the cylinder
 - >Load Driver
 - Select its rotateZ attribute
 - (the same attribute that already drives the ball's scaleY)
- Back in the Attribute Editor for the Blinn material,
 - change the color of the material to a red
- Select the cylinder
 - Make sure it is rotated 0.0 in Z
- Back in the Set Driven Key window,

- >Key
- Back in the Attribute Editor for the Blinn material,
 - change the color of the material to a blue
- Select the cylinder
 - Rotate it in Z
- Back in the Set Driven Key window,
 - >Key
- Test:
 - When you now rotate the cylinder,
 - the ball's color changes from red to blue
 - The ball simultaneously scales in Y
 - because of the first driven key you defined for that