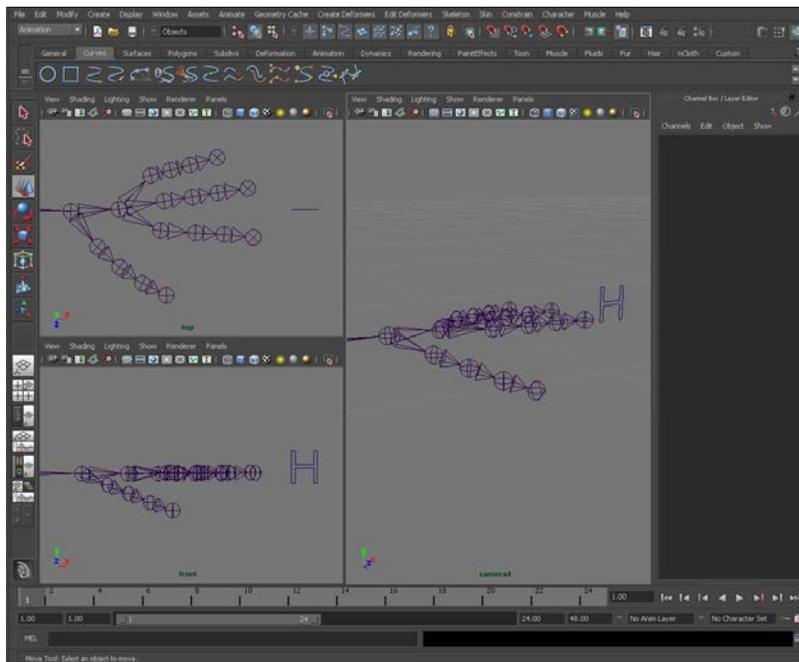


# A tutorial on Driven Keys in Maya

**Driven keys** is a feature in Maya that allows the attributes of one object (known as the **driven**) to be controlled by the attributes of another (known as the **driver**). It is designed to relieve the laborious process of animating individual or cumbersome objects, usually in sequence, by tweening between keyframes instead.

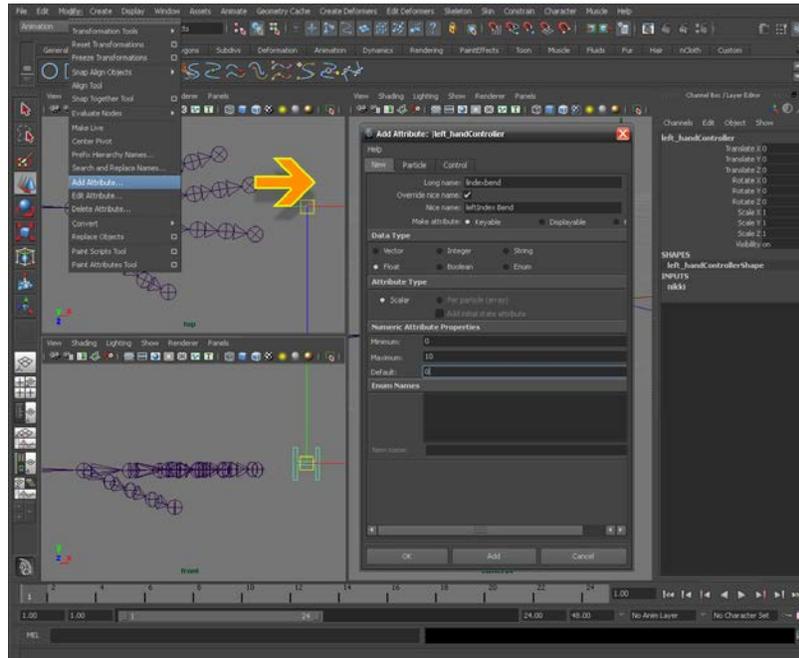
In this tutorial, you will learn how to prep a driver to control a driven. For this example I will use the index joints of a hand to curl and extend.



The elements of this tutorial: a hand skeleton, whose index joints will be driven, and a NURBS curve “H” that will be their driver.

## Getting started

1. The first thing to do is to create a custom attribute for the H. This is what we will use to drive the joints. We select the H and then navigate to **Modify – Add Attribute**.

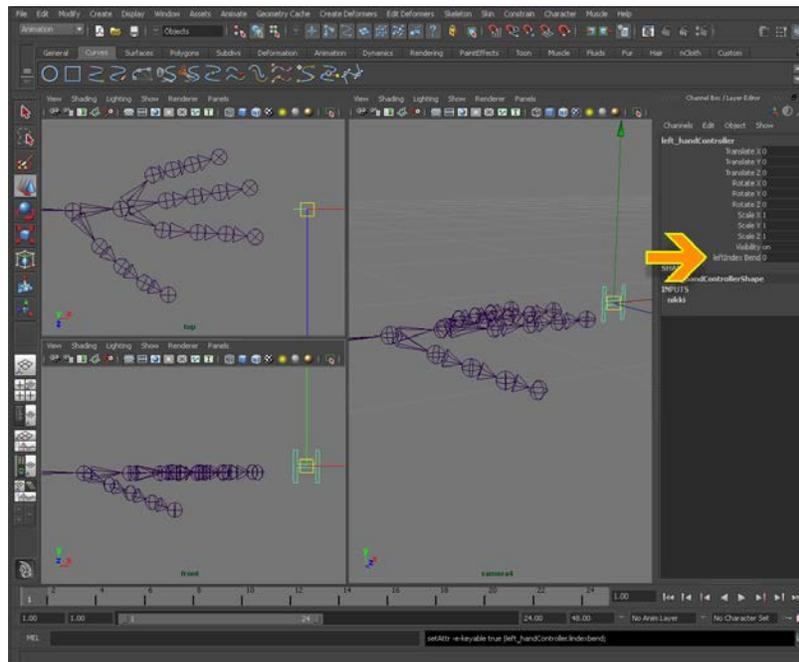


The Add Attribute option and menu. I have written in the values for this example.

2. In the Add Attribute menu, under New, write the name of a variable you would like to use next to **Long name**. This will define what stores the numeric value of the attribute. Long names cannot contain spaces or special characters and, by default, are used as the display name of the attribute. If you would prefer a more aesthetic name instead, check the box next to **Override nice name** and write it in the activated text field. For this example I used **lindexbend** as the long name and **leftIndex Bend** for the nice.

Now that we have defined a variable for the attribute, we need to specify the lowest and highest amounts the value can move between. Under **Numeric Attribute Properties**, type what amounts you'd like to use next to **Minimum** and **Maximum**. **Default** is the value the attribute will assume when created. Keep in mind that values can be decimalized, and it is for this reason that setting a large maximum is not always necessary. For this example, I used a minimum of **0**, a maximum of **10** and a default of **0**.

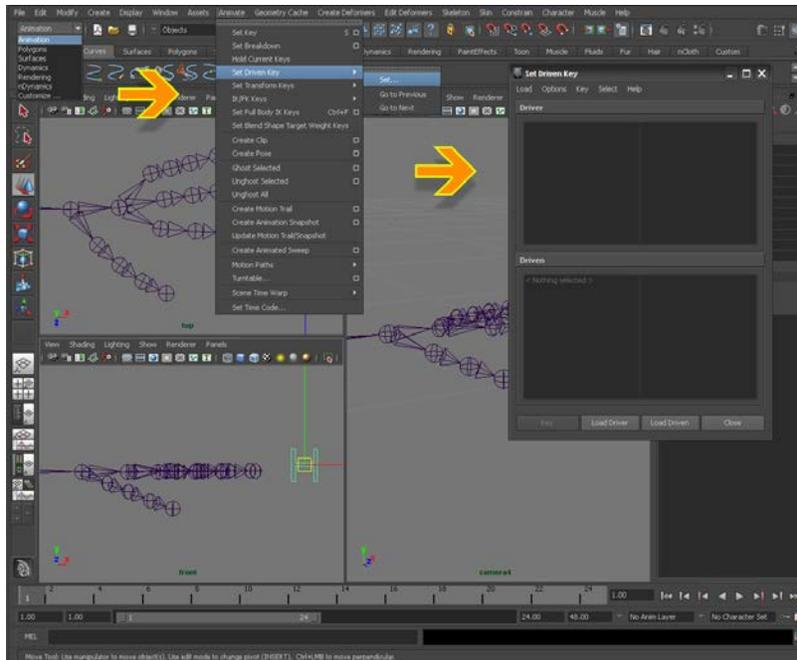
If you are creating more than one attribute, click **Add** to use what's been defined and reset the menu. Otherwise press **OK**.



Our new attribute in the Channel Box. If your Channel Box is not showing, click the  icon in the top-left corner of the program.

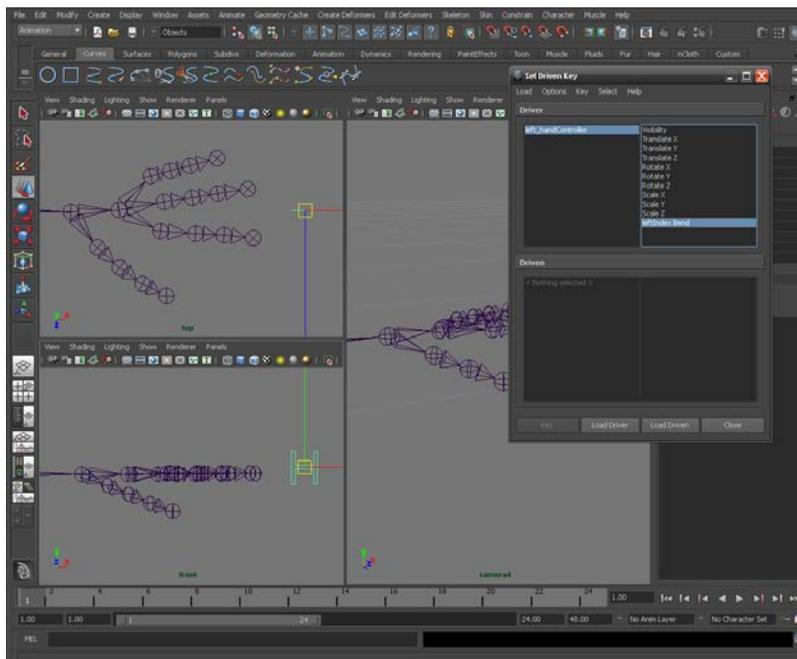
With the H selected, we can see our custom attribute in the **Channel Box**. Now that we have something to assign a value to, we need to setup our finger joints with driven keys.

3. Change the Status Line to **Animation**, if it isn't already, and navigate to **Animate – Set Driven Key – Set**. In the Set Driven Key menu, we are presented with four text fields, paired into Driver and Driven, and four options. This is where we will network the H and the finger joints.



Where to change the Status Line and then where to find the Set Driven Key option and menu.

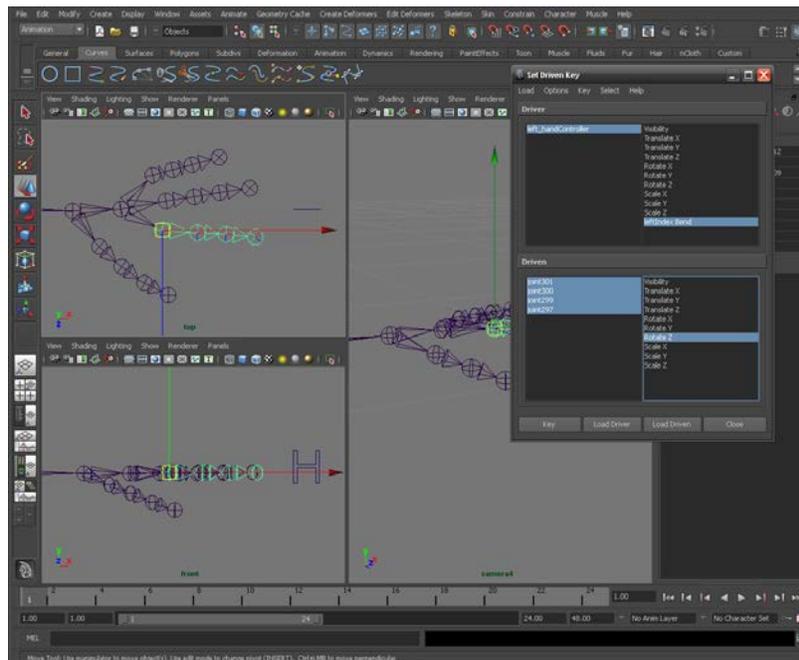
With the H selected, we click **Load Driver** to assign the H as a driver and pull up all of its attributes in the right field. As our custom attribute will also be listed there, we select it.



The H has been defined as the driver and our custom attribute has been selected.

## Add joints

4. Our next step is to specify the joints to be driven. Because we are going to drive a series of joints, each one must be consecutively selected, starting from the outermost joint, holding **Shift**, and selecting each one up the chain until we have all we need. After this, we click **Load Driven** to assign the joints and pull up their collective attributes. Select all of the joints in the left column and then what attribute(s) you wish to control with the driver in the right. For this example, I would use **Rotate Z**.

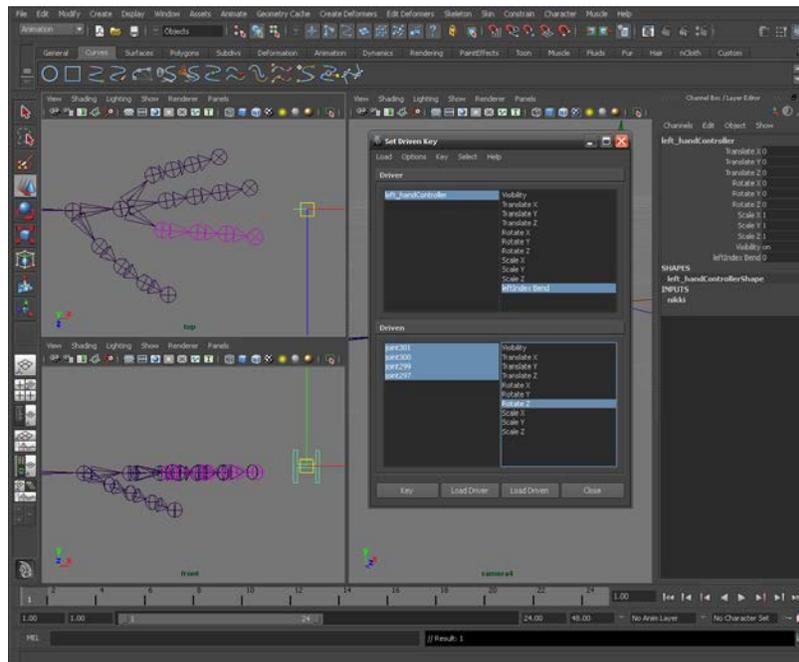


The joints of the hand skeleton have been defined as the driven with their attribute selected. For this example, each joint must be individually selected since we want each one to position differently.

All that's left to do now is set keys. This will assign the value of the custom attribute to the arrangement of the driven. For this example, I will key the joints two times: **one** for when they're extended, and another for when they're curled.

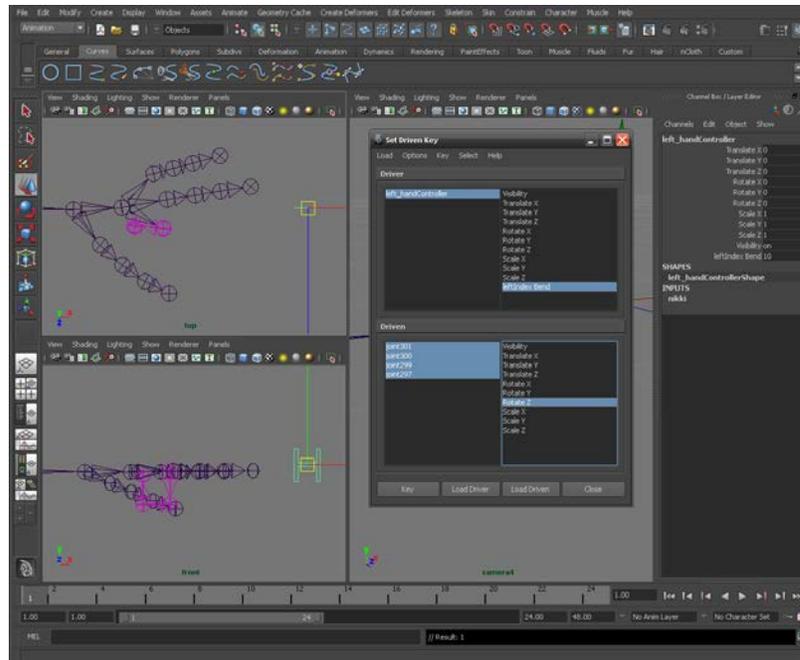
5. Because the value of our attribute determines the value of a key, ensure that the value of the attribute is set where you want it. For this example, **0** would be when the joints are extended and **10** for when they're curled. With the joints extended as they are, we

would click **Key** to assign the value of 0 to them, since the attribute was made with a default of 0 and was never changed.



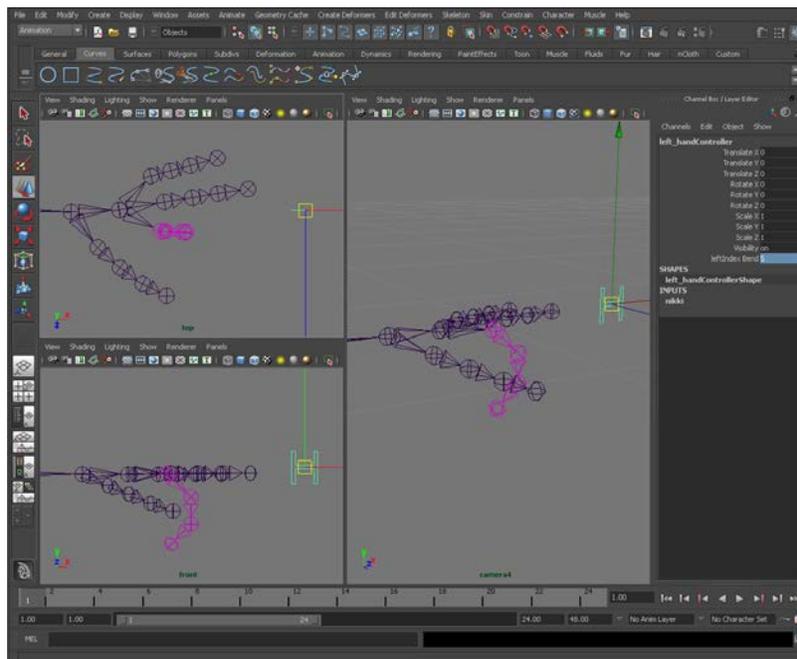
The value of our custom attribute is at 0. Because we want 0 to represent when the joints are extended, we can press Key to assign the value to their position. The joints highlight purple when the H is selected to show us what it being driven by it.

Now that 0 has been assigned, we must go and assign 10 for when the joints are curled. We select the H and change the attribute value from 0 to 10. With that set, we can go to our joints and position them curled. If the driven is repositioned before the value is set, the driven will revert to its previous state when the value is changed. For this example, each joints **Rotate Z** was set to **-90**. After we're finished, we press Key once more.



The value of our custom attribute is now 10. After curling the joints how we want them, we click Key again to assign the second value.

The joints are now keyed between 0 and 10. To test them out, we can select the H and change the attribute value to something else, such as 5. The new value will tween the joints based on the keys.



Having changed the value of our attribute to 5, the joints tween from extended to curled.

## Conclusion

Driven keys are a convenient way to animate multiple joints and control them with a single object. The process can be tricky and time-consuming; hopefully this tutorial has explained the details in an easy-to-follow format and you've been able to add another feature to your repertoire.

Thanks for reading!

Matt