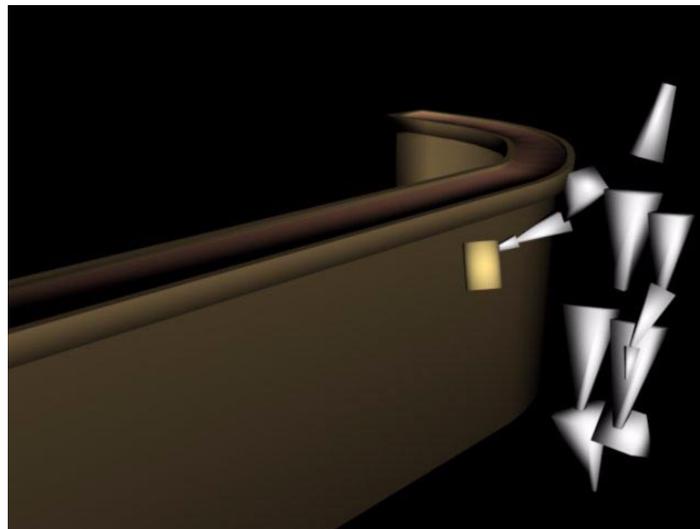




## PICKING UP OBJECTS

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*This tutorial will teach you how to use the Copy Transformation operation to animate a character picking up an object.*



### ESTIMATED TIME REQUIRED

20 Minutes

# LEARNING GOALS

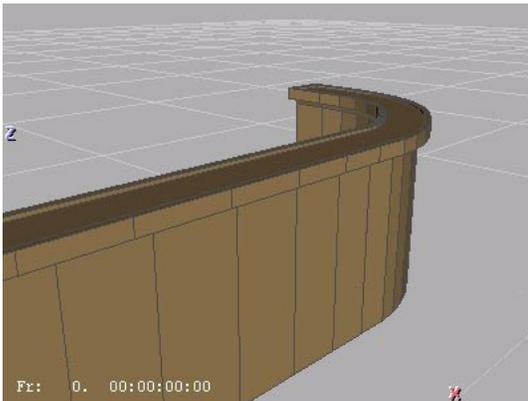
In this tutorial, you will learn a technique for:

- Creating a hidden “dummy object” that can be attached to another element
- Using the Copy Transformation operation to animate a character picking up an object

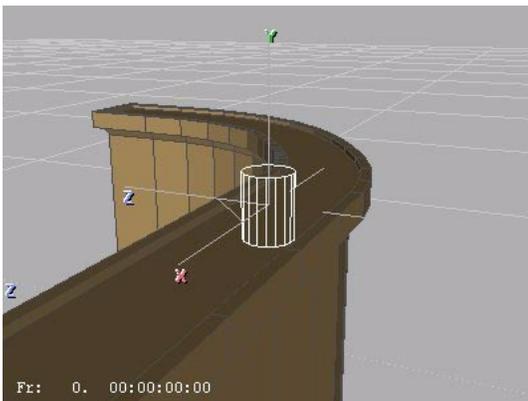
## LOADING THE SAMPLE SCENE

We’ve created a sample scene that’ll get you started:

- 1 Use the *File>Open Scene* command to open the scene that accompanies this tip.
- 2 [L] on the *Animating* configuration tab.
- 3 Use the Animation: Viewer Graph to make the bar object visible.



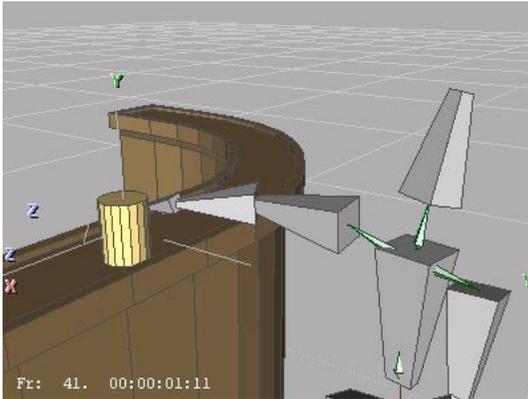
- 4 The next step is to position the *object* you want to manipulate. To use the technique described in this tip, you’ll work only with objects, not bodies.
- 5 Select objects on the element sensitivity menu, then [R] on the “glass” object and *Local Axes* [L] to make the local axes for the object visible. (This makes it easier to see how the object is being animated.)



- 6 [R] on the glass object and [L] on the keyframe icon. This creates a keyframe for the selected object (in this case, the glass).

## PICKING UP THE OBJECT

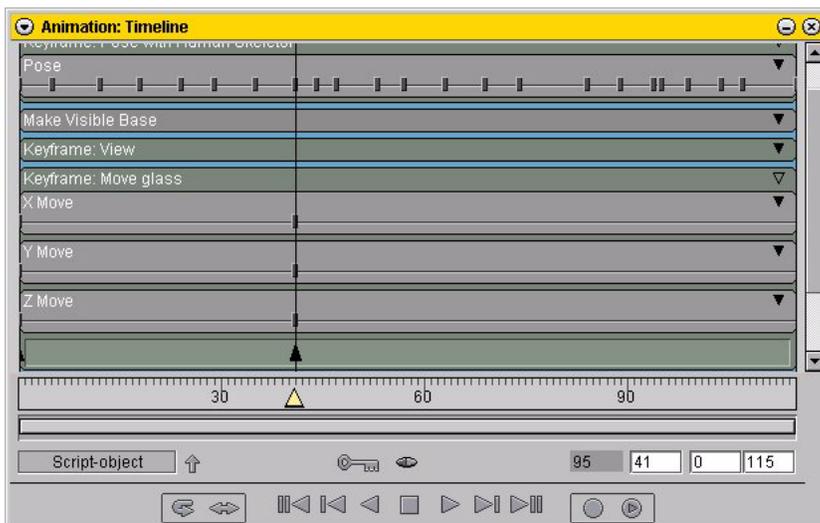
- Next, animate the character to the frame where he should pick up the object and adjust the pose as needed.



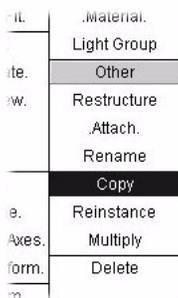
- Now you need to take a snapshot of both your character and the object at this frame:

- Record the skeleton's pose in the *Keyframe: Pose* channel.
- Record the glass' position in the *Keyframe: Move* channel.

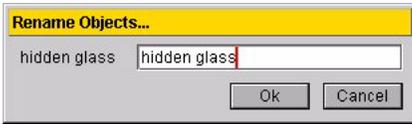
Your script should look something like this:



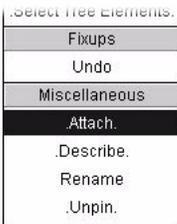
- [R] on the glass object and choose *Copy*, [L] to insert the object into the scene.



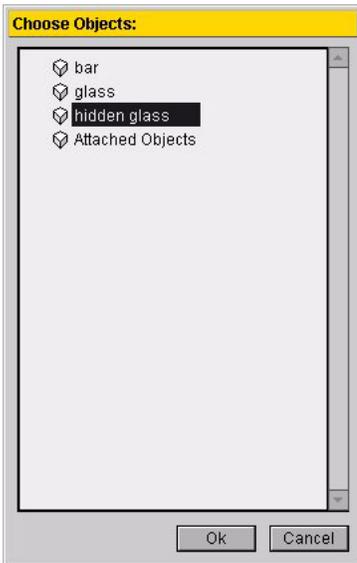
10 In the Scene Graph, [R] on the duplicate object and rename it “hidden glass.”



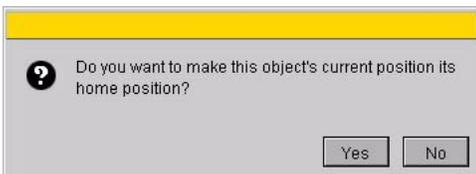
11 Select points on the element sensitivity menu, and [R] on the joint at the end of the skeleton’s fingers, then *Attach* [L].



12 Select the “hidden glass” object from the list of objects that appears:

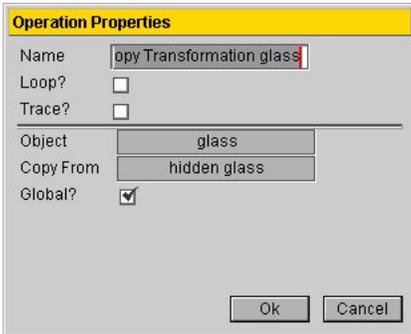


13 When prompted whether to make the object’s current position its home position, choose *Yes*.

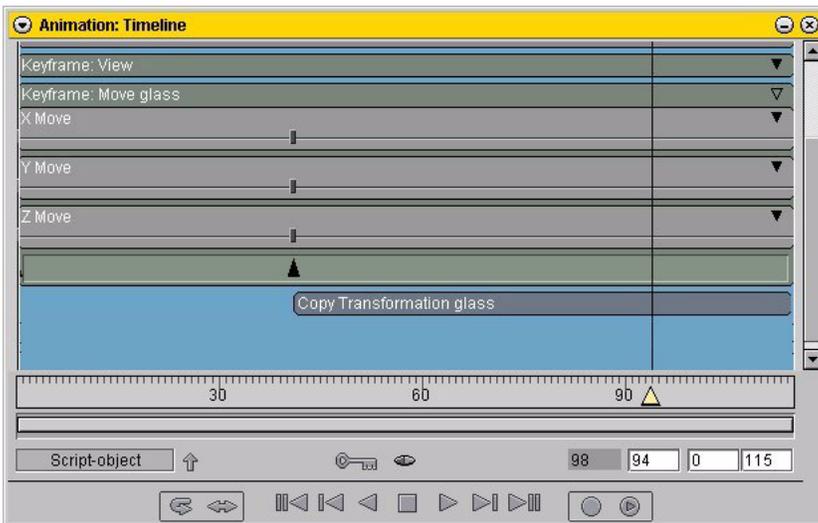


14 Now you’re ready to add the *Copy Transformation* channel. [M] on the channel icon next to the key icon and choose *Transform Combinations>Copy Transformation*. In the *Operation Properties* dialog, select the “glass” object as the one you want to animate, and the “hidden glass” object as the one whose transformation matrix you want to copy. You should also make sure the *Global?* checkbox is

selected so that the transformation is copied in global space rather than local space. Click *Ok* when you're done.



- 15 Next, drag the left edge of the channel to the frame where the character should pick up the object (in our case, to frame 41).

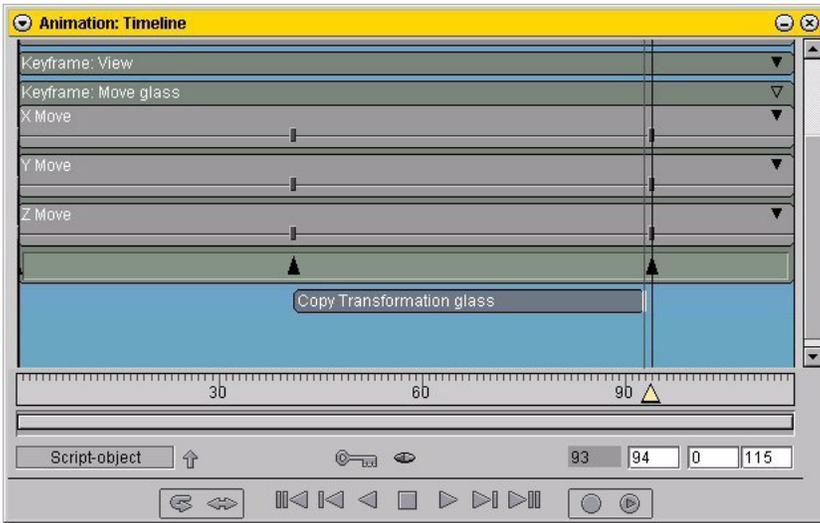


- 16 Scrub your animation now. The character picks up the object and walks off with it.

## SETTING THE OBJECT BACK DOWN

- 17 As you did before, you'll need to record the position of the glass and the skeleton. However, you'll also need to turn off the *Copy Transformation* channel at the appropriate frame. Use a combination of IK and FK commands to pose the skeleton into a position where he sets the glass down. When both the skeleton and the glass are in the correct position, you need to:
  - Record the skeleton's pose in the *Keyframe: Pose* channel.
  - Record the glass' position in the *Keyframe: Move* channel.

- You should also drag the right edge of the *Copy Transformation* channel so that it ends one frame before the frame where you recorded the key for the “glass” object.



- 18** That’s all there is to it! [L] on the animate button on the timeline to see the character approach the bar, pick up the glass, set it back down and walk away.

