Motion

Creating Animation with Behaviors

Using Simulation Behaviors

Motion graphics animators often try to mimic real-world movements, such as an object accelerating as it starts to move or slowing to a stop. Simulation behaviors are great for mimicking movement that results from inertia, gravity, and other natural forces.

To animate the photos falling back into z-space, we will apply an Attractor behavior to an invisible layer. The layer will act like a hidden planet that attracts passing meteors.

1   Turn off the *dates* group, and then turn on, select, and open the *photos* group. The photos are much larger than the Canvas, so they will look as if they are falling into the scene very close to your view.

   To make a behavior work in 3D in this group, first make the group itself a 3D group.

2   Choose Object > 3D Group.

   Rather than applying a behavior to each layer to move it back in z-space, place a shape layer where you want the photos to move, and apply one behavior to animate them all toward that shape layer.

3   In the Toolbar, choose the Rectangle tool.

4   Drag in the Canvas to create a rectangle of any size or shape. You won't be seeing the rectangle in the final animation, so the shape doesn't matter. However, you do want to place it in the center of the Canvas and 5000 pixels back on the z-axis, much like the end of the motion path in the previous exercise.

5   Press Esc to return to the Select/Transform tool; then press F1 to open the Properties tab of the Inspector. Set the Position values to 0, 0, -5000.

The rectangle should get much smaller as it jumps back in z-space. Now you can apply the behavior to attract the photos.

6   Turn off the rectangle's visibility. Press Command-2 to open the Library, and choose the Simulation folder of behaviors. Click each of the behaviors to preview it.

7   Drag the Attractor behavior onto the *Rectangle* layer and start playback. The pictures change from one to the next, but they don't move. By default, the Attractor does not work in z-space.

8   In the Include section of the HUD, click the Z button. There is still no change because the rectangle is 5,000 pixels away from the photos, but the Influence parameter is set to 1,000 pixels by default.
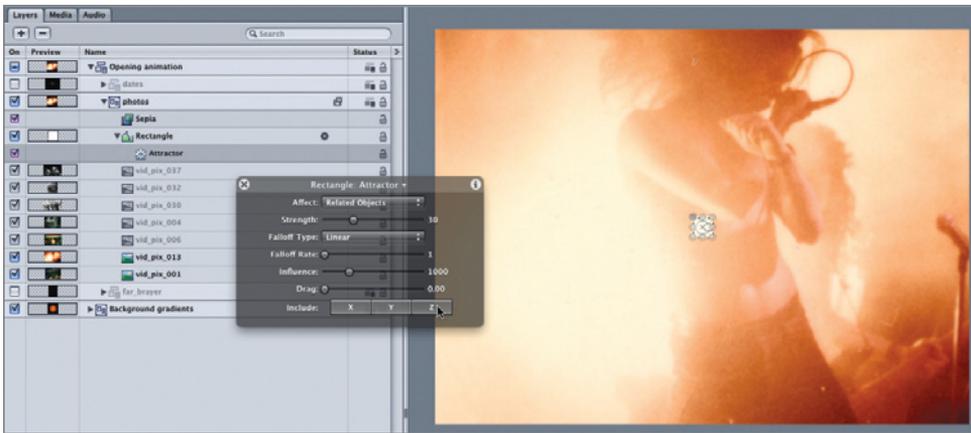
9   Drag the Influence slider all the way to the right. It goes only to an insufficient 4,000 pixels. When the HUD won't let you enter the value you want, try the Inspector.

10   Press F2 to open the Behaviors tab of the Inspector, and set the Influence value to 6,000 for good measure.

Finally, the pictures move back in z-space, but not very quickly.

11   Select the Attractor behavior again, and in the Behaviors tab of the Inspector, increase the Strength value to about 200.

The animation is starting to look better, but it would be more interesting if each photo started from a different position. To change this, open up some working room around the Canvas, and then enable a feature that lets you see layers outside the Canvas.

12   Stop playback, press Home, and then press and hold down Command-Spacebar and drag left to create a lot of extra space around the Canvas—enough to easily see the bounding box of the first photo. By default, everything outside the Canvas is gray, and you can see only the bounding box of a selected object.

13   Choose View > Show Full View Area or press Shift-V so that layers outside the Canvas will appear at lower opacity.

14 Drag each layer off-center in a different direction. If you Shift-select all the layers in the Layers tab when you are done, you should see all of their bounding boxes and red motion paths.
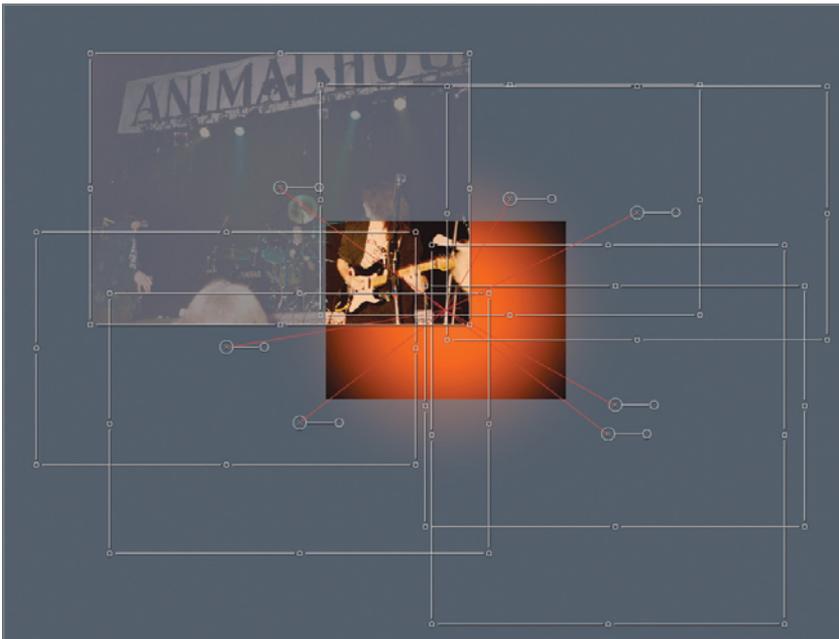
NOTE ► You will see an image outside the Canvas only for layers at the current playhead location.

15 Play the project to check the animation, and save your work.

By applying a Simulation behavior to a "dummy" or "null" shape layer, you made one behavior do the work of many. Now you can make the layers fade and spin by copying the behaviors from the *dates* group. But the photos have a different duration, so some trimming will be in order.

Trimming and Applying Behaviors to Multiple Layers

In this exercise, let's use the Timeline to check the durations of copied behaviors and trim them.

1 Click in an empty part of the Canvas to deselect everything. Press Shift-Z to fit the Canvas to the window, stop playback, and press Home.

2 Open the *dates* group. Below the *1984* layer, Shift-select the Spin and Fade In/Fade Out behaviors, and Option-drag them onto the *vid_pix_001* layer.

3 Press F6 to open the Timing pane, and in the Timeline, close the *dates* group. Scroll down, then select and open the *vid_pix_001* layer. The behaviors start at the right frame, but they aren't long enough.

4   Press Shift-O to move the playhead to the layer's Out point.

5   Shift-click both behaviors and press O to trim their Out points to the playhead.

All the photo layers have the same duration, so you could now copy these two behaviors to all of them with no further trimming. However, that's not always the case, so we will use a different method that will automatically match every behavior to the layer's length.

6   In the Layers tab, Shift-click all the remaining photo layers that do not have the fade and spin behaviors applied.

7   Click the Add Behavior icon and choose Basic Motion > Fade In/Fade Out. The behavior is applied to all the selected layers and matches the length of each. It would do so even if the layers had different durations. Since this is a new behavior, you need to modify it to match the others.

8   In the Layers tab, Command-click each of the six new Fade In/Fade Out behaviors.

TIP ▶ You could also select the behaviors in the Timeline. Command-clicking allows you to make a noncontiguous selection of the behaviors by skipping the layers themselves.

9   In the HUD, increase the Fade In time to 30 frames. The HUD title, "Multiple Selection," tells you that this adjustment will affect all the selected behaviors at once. Now add the Spin behavior.
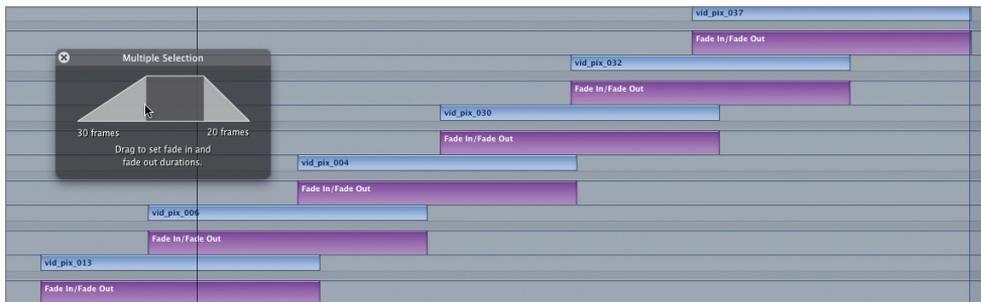

10   Command-click the photo layers to select them without selecting the behaviors. Then click the Add Behavior icon and choose Basic Motion > Spin.

11 Select each Spin behavior one at a time, and in the HUD, give each a unique Spin Rate, Latitude angle, and Longitude angle.

As a final step, animate the brayer graphic in the *far_brayer* group.

12 In the Timeline, close the *photos* group, open the *dates* group, and open the *1984* layer. Shift-click just the Fade In/Fade Out and Grow/Shrink behaviors, and Option-drag them to the *ko_brayer.03e_blk* layer. This layer doesn't need to spin, but you may want to change its starting position and rotation a little.

13 With both layers still selected, Shift-drag the Out points to the right until they snap to the end of the layer.
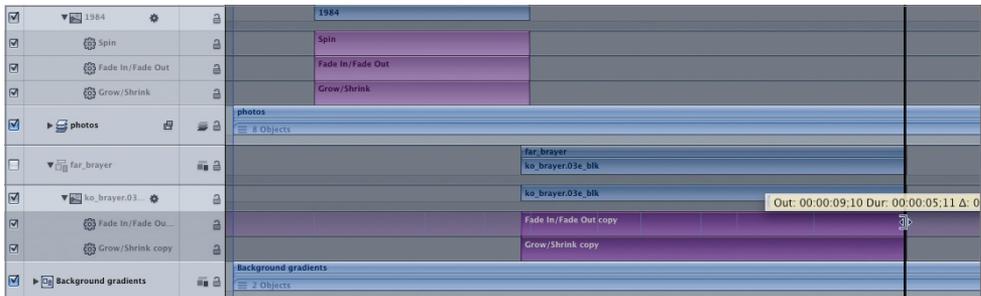
14 Turn on the *far_brayer* and *dates* layers, press F6 to close the Timing pane, and close all the groups in the Layers tab. Press Shift-V to turn off the full view area, and play the project.

You should now have a nice animation of falling dates and photos, with one brayer graphic that will set us up for additional graphic elements in the next lesson.

15 Make any final adjustments you choose, and save your work.

You've used a variety of Basic Motion and Simulation behaviors to create animations, and learned several ways to add, adjust, copy, and trim those behaviors. To conclude this lesson, in Part 5 we'll use a different project to explore another type of behavior—the Parameter behavior.