

## Assignment 3: Bouncing Balls

This assignment is intended to give you experience with:

- building your own shot
- the animation principles of staging, timing, squash and stretch, and exaggeration.

Your goal is to animate two distinctly different bouncing balls. One should be heavy like a bowling ball and the other should be squishy and bouncy.

Plan out what you want your shot to look like. Sketches can help. The restrictions are:

- The shot shouldn't be any longer than 5 seconds.
- Your camera must be static.

Once you have a clear idea of how you want to present your two bouncing balls, you are to build your own scene file using the two objects in the content folder ("assignment 03 content"). It is fine to load the same object multiple times to do this, but please do not use other objects. The idea here is for you to come up with a shot that is interesting because of the placement of the camera and the motion of the objects ONLY.

### **DUE Monday March 3<sup>rd</sup> at the beginning of class**

Hand in your final rendered movie (see the assignment 2 sheet for details) AND your final scene file ("ChrisPerryA3.lws" for example). The assignment won't be considered complete without both a movie and a scene file.

#### **Step 0: get everything you need to do the assignment, run Lightwave, set up your scene**

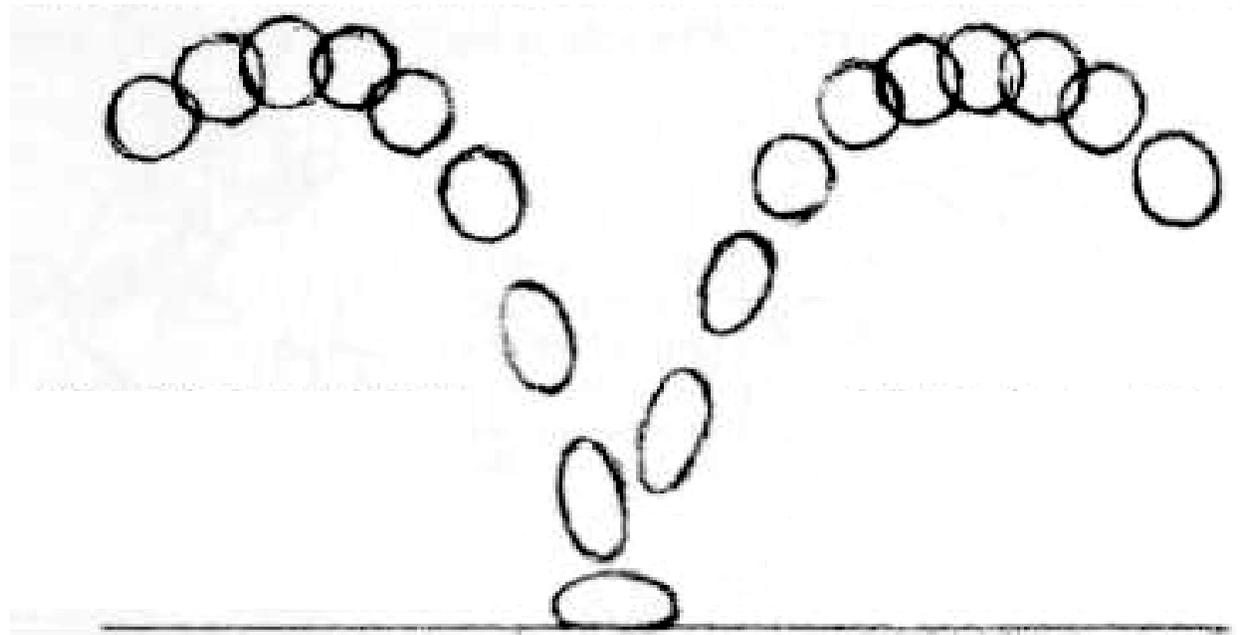
- The content folder is called "assignment 03 content"
- To import objects into Lightwave, use the + key (or, under the Items tab, select Add->Objects->Add Object).
- Make sure you're working at 24 frames per second (in General Options, "o").
- Change the ending frame to fit the duration of your shot. Note: you can raise or lower this value and you can change your mind later.
- Remember that the camera is probably the biggest contributor to the final "look" of the shot! So get the camera figured out early (position, orientation, focal length) and stage the other objects to the camera you've chosen.
- Under the camera properties panel ("p" when the camera is selected), set the resolution of the movie to 320x240. If you would like to work at a different image aspect ratio, make sure the height of the final render is equal to 240 pixels.
- SAVE your scene file frequently. I strongly encourage saving the scene file with a new name each time ("draft1.lws", "draft2.lws", etc) so that you can go back if there's a problem.

#### **Step 1: animate**

- One of the challenges in this assignment is creating the right kind of motion curve for a bouncing ball. TCB tension 1 interpolation is good for ease in/ease out curves, but not for bouncing balls! I recommend using Bezier interpolation for the bouncing ball keyframes, and changing the tangent handles to create the proper motion. Hold down "option" while dragging the handles to get them to move independently.

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- Another big challenge is using squash and stretch effectively. For the squishy ball (and even the heavy one if you think it's appropriate), use the x, y, and z scale parameters ("h") to reshape the ball during it's flight. See the diagram below for ideas! NOTE: the keyframes required for good squash and stretch are not the same as those required for good positioning. This means that you MUST take care to set only position keyframes when animating the position and only scale keyframes when animating scale. Don't just hit enter twice any more. Hit it once, check the settings, and then hit it again.

**Step 2: render**

- When you like your motion (be sure to preview with "make preview" instead of just hitting the play button), render out a final movie. Only render the frame range that you were animating, of course.
- Follow the instructions from the last assignment, and be sure to play your movie before handing it in to be sure that it's working!

**Step 3: hand in the movie and the scene file**

- Rename your scene file to something appropriate ("ChrisPerryA3.lws").
- Drop both the movie and the scene file into the hand-in folder on ash-eclass.

Helpful resources:

The LW manual.

The entire Lasseter article (available in the hand-outs folder on Course Storage).

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**ALSO:** Please read the entire Lasseter article for Wednesday, Feb 26.