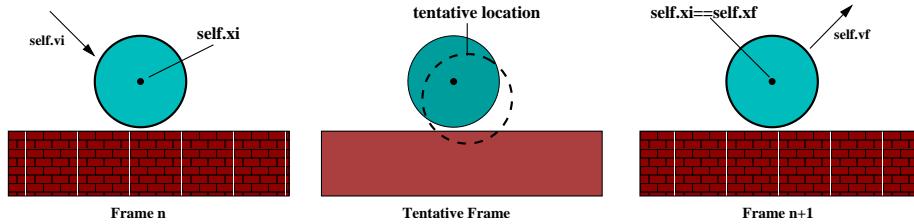


PyBounce

Gregory Stanton

August 9, 2004



The PyBounce project has been undertaken with the goal of developing a physical model of bouncing balls that can be displayed in the Cube. The resulting program models fully elastic collisions between spherical balls. Any number of balls of different radii and masses may be modeled simultaneously (within natural computational restraints), and the space in which they bounce can be specified in a reasonably general way. Gravity can also be made to point in any direction and can be given any magnitude, which is fun to play with.

Six button functions are included for interactive purposes, so that gravity may be easily turned on and off, an unbounded number of balls may be added (and removed), radii may be modified, and the program may be restarted. For fun, the program also triggers a sound from each ball as it undergoes a collision. Although the sound is not meant to be realistically depicted, the volume is adjusted according to impact velocity.

The energy of the scene is also calculated for each frame, which is useful for testing the physical accuracy of the model. In its current state, energy is conserved with few exceptions. Friction would be a nice addition to the model.