$$0 = \ddot{C} + 2b\dot{C} + b^2 C. \tag{4}$$

What b value works best? What happens when the damping parameter b is set too high, or too low? Can you determine b automatically? Momentarily disable C^{RING} and drop the chain from a horizontal position: (a) compare the stabilized system ($b > 0$) to the unstabilized one ($b = 0$); (b) plot the error in the constraints as a function of time.

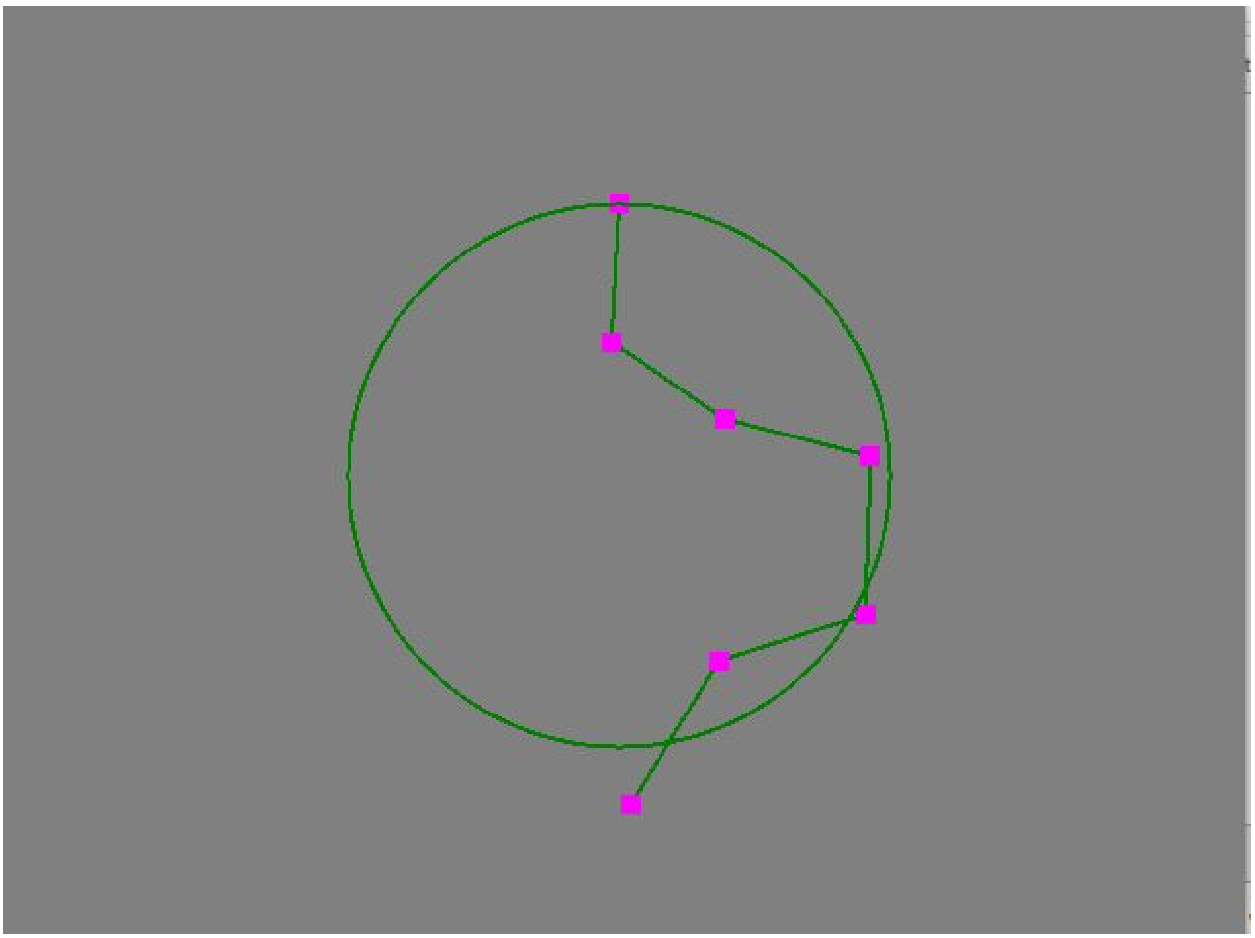
Next, try adding some simple velocity damping, $\mathbf{f}_i = -\alpha\dot{\mathbf{x}}_i$ to give the chain an "underwater effect." How much damping can you add before stability becomes a problem?

First, I tried to set b=0,

```
double b=0;

chain->ks = pow(b, 2);
chain->kd = 2*b;
```

After I add a horizontal force to the second last point, I got this result:



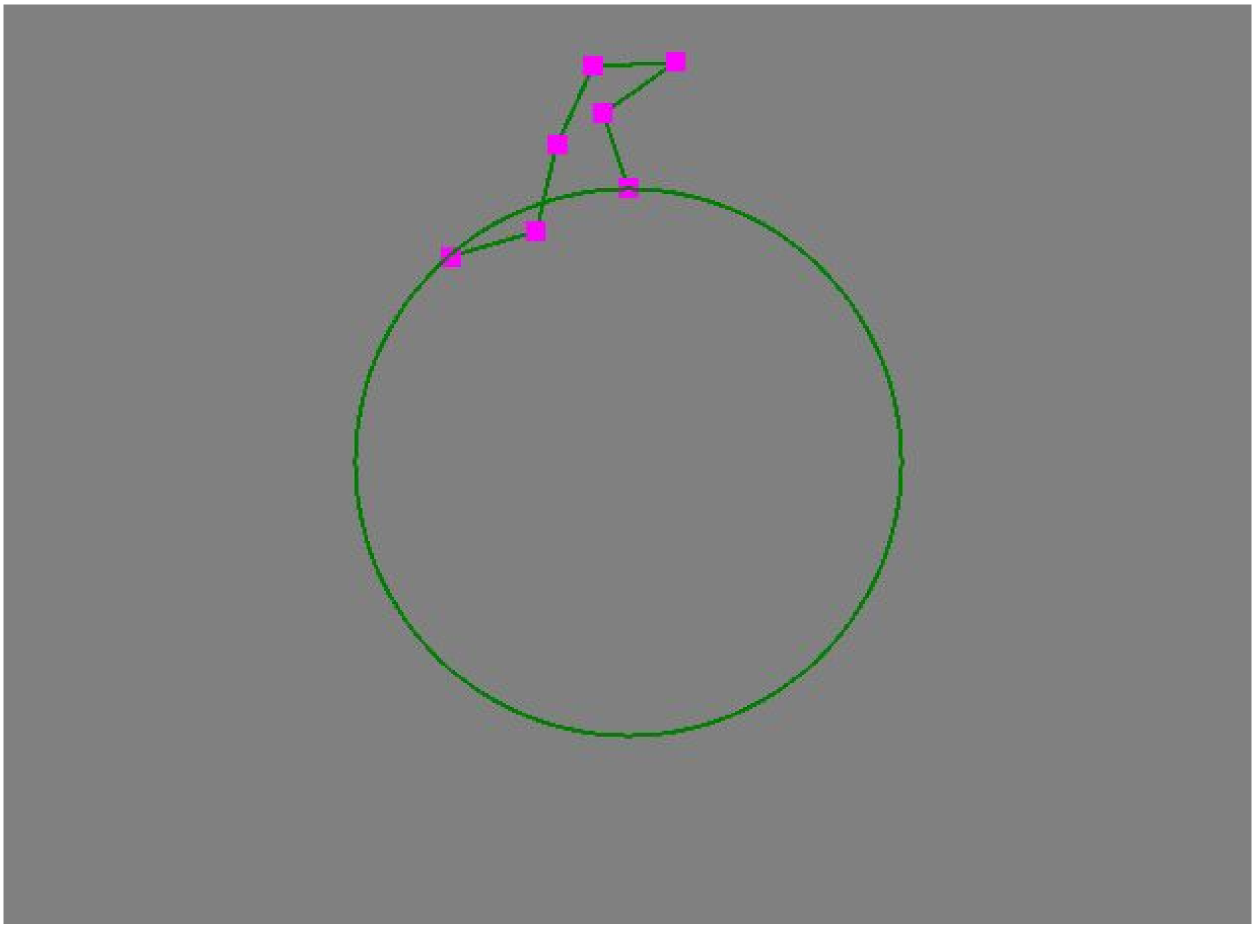
The system seems kind loose, the last point even get off the track. This is an unstabilized system.

After that, I set b>0,

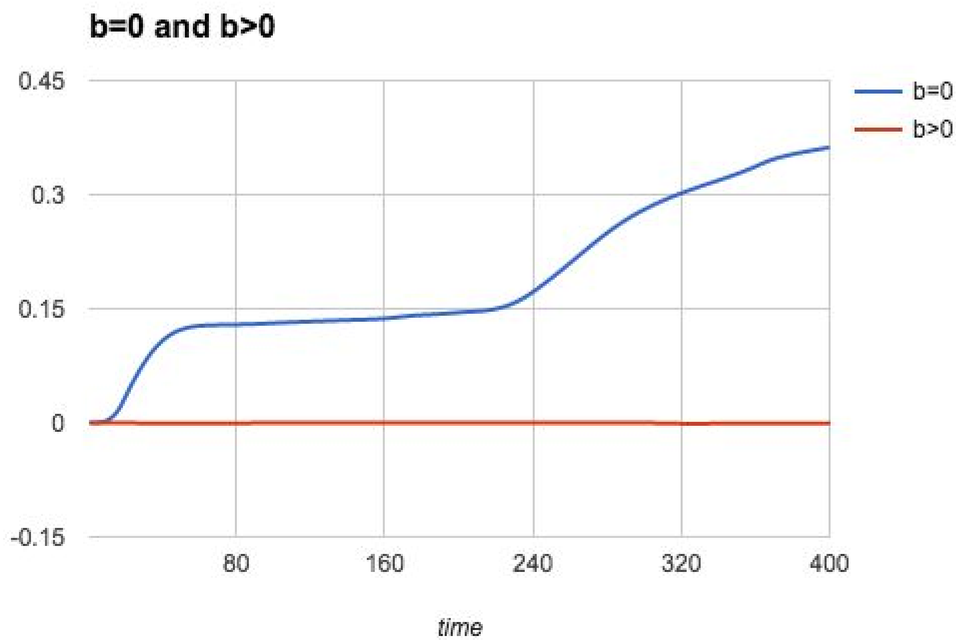
```
double b=10;

chain->ks = pow(b, 2);
chain->kd = 2*b;
```

And I got this:



This system seems more constrained, so I printed out both of their last point C constraint.



As you can see in the chart, when b>0 the last point stays on the circle perfectly, however, when b=0, the last point get off the circle away as the time goes by.

I tried to set b=100, but when I run the program, the system blow up very fast.

So, If I set the b too low, the system will become loose, but if I set it too high, It will blow up quickly.

Then I change the ks and kd individually to get a better result.

Finally, I found that when I set ks = 100 and kd = 10, my system stays well.