# 1 | Understanding Research Papers

Jack attempting to read through research...

## 2 | Biggins 2014

#### 2.1 | Problem Setup

Equilibrium curve setup. Treat chain as a bit of a rope, so

- Horizontal change of a "bead": dx
- ullet Length of a "bead": ds
- Angle by which the bead is above the ground:  $\theta$
- Mass density:  $\lambda$

And hence,  $ds=\frac{dx}{\sin(\theta)}$ , and mass is  $\lambda ds$  as it is indeed the mass density times length.

### 2.2 | There is no acceleration?

Apparently the acceleration due to gravity could be ignored... Not sure why/how.

#### 2.3 | Change tension force over time to counter gravity

It seems, it stedy-state does not have an tangent acceleration (circular motion, only acceleration is perpendicular), we *know*?? that the tangent force has to balance gravity. And hence, Biggins claims:

$$\frac{d}{dx}T(x) = \frac{\lambda g}{\sin\theta}\cos(\theta) \tag{1}$$