Figures for "Treadmilling stability of a one-dimensional actin growth model"

(Dated: May 29, 2019)

The data for these figures are taken from the *Mathematica* notebook named

`‘‘1d growth plots.nb’’`

section "20190416 plots for 1d growth paper". The data plotted are taken from the excel file

`‘‘20190416_sR_unst.xls’’`

and

`‘‘20190417_sR_st.xls’’`

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The data for the force velocity relationship is taken from section "20190524 force - velocity plot" of the *Mathematica* notebook named

`‘‘1d growth plots.nb’’`

. The data plotted are taken from the excel file

`‘‘20190524_fv.xls’’`

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I replot the same figure with the change asked by Rohan
In the version of Figure 7 below, I add back the "t"s that I had removed previously.
Here is the force velocity plot 9
Here in Figure 10 is a second version of the same plot
The previous picture has a little problem in the plot of W. I try plotting it analytically.
I need to use the

`groupplot`

library in

`pgfplot`

to align the plots properly.

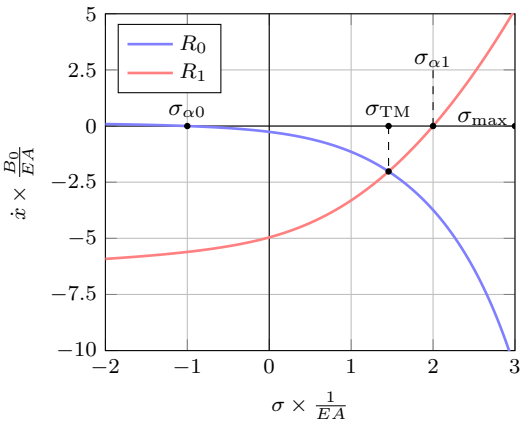

Figure 1. Stable treadmilling solution for $\sigma_{\mathrm{asym}} = 5EA$, $\sigma_{\max} = 3EA$, $\sigma_{\alpha 0} = -EA$, $\sigma_{\alpha 1} = 2EA$, $\beta = 1.0$

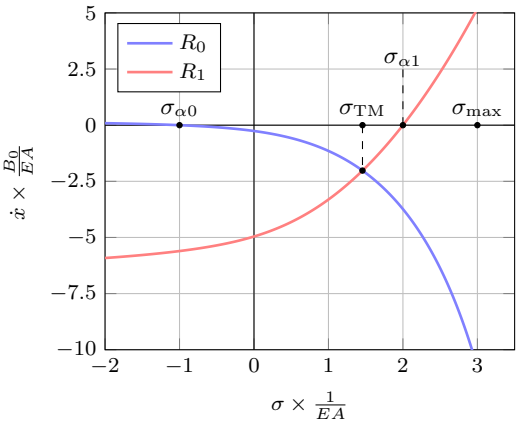

Figure 2. Stable treadmilling solution for $\sigma_{\mathrm{asym}} = 5EA$, $\sigma_{\max} = 3EA$, $\sigma_{\alpha 0} = -EA$, $\sigma_{\alpha 1} = 2EA$, $\beta = 1.0$

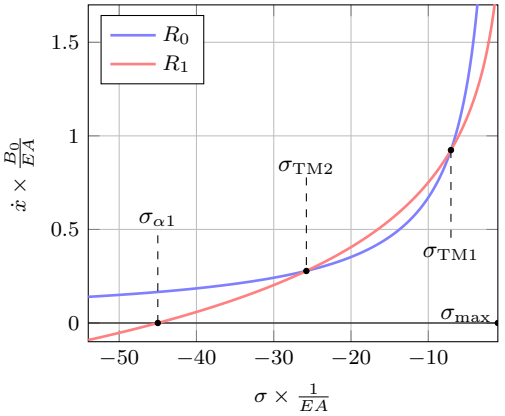

Figure 3. Multiple treadmilling solutions for $\sigma_{\mathrm{asym}} = 0$, $\sigma_{\max} = -EA$, $\sigma_{\alpha 0} = 2EA$, $\sigma_{\alpha 1} = -45EA$, $\beta = 1.0$

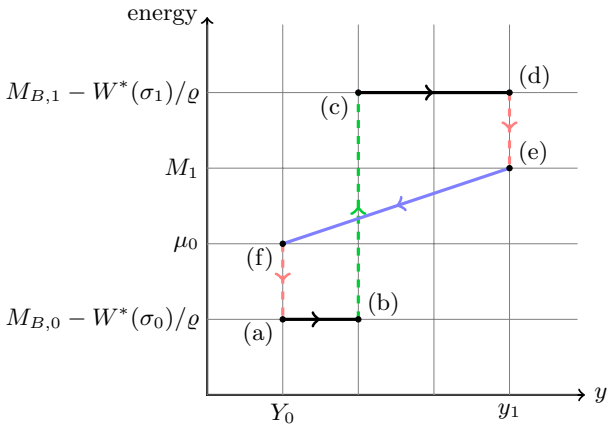

Figure 4. Evolution in space of the energy of a mole of actin as it undergoes treadmilling

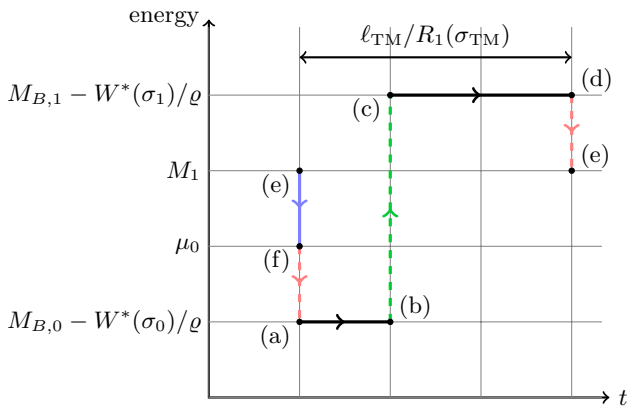

Figure 5. Evolution in time of the energy of a mole of actin as it undergoes treadmilling

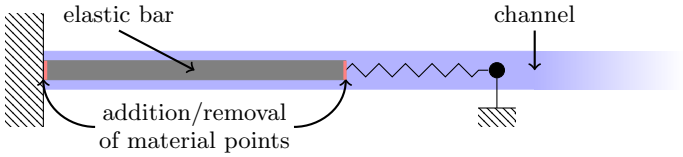

Figure 6. An elastic bar clamped between a hard and a soft device, immersed in a semi-infinite channel.

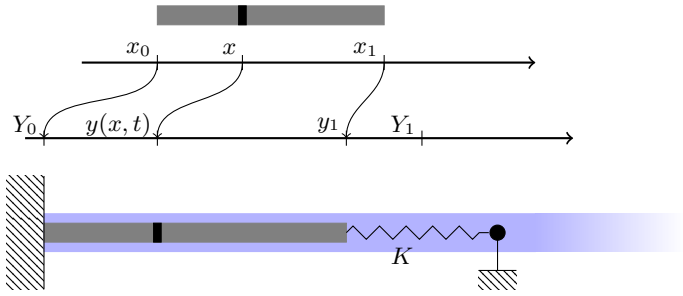

Figure 7. Reference (top) and current (bottom) configuration of the elastic bar.

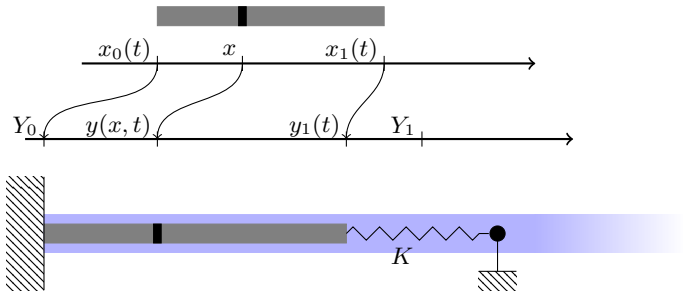

Figure 8. Reference (top) and current (bottom) configuration of the elastic bar with variable t explicitly specified.

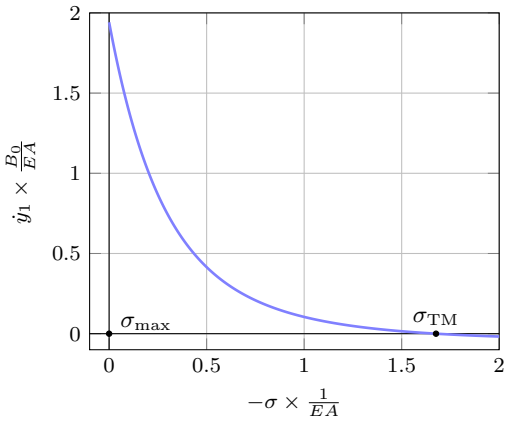

Figure 9. Force - velocity plot for $\sigma_{\mathrm{asym}} = 2EA$, $\sigma_{\max} = 0EA$, $\sigma_{\alpha 0} = -4EA$, $\sigma_{\alpha 1} = -1EA$, $\beta = 1.0$

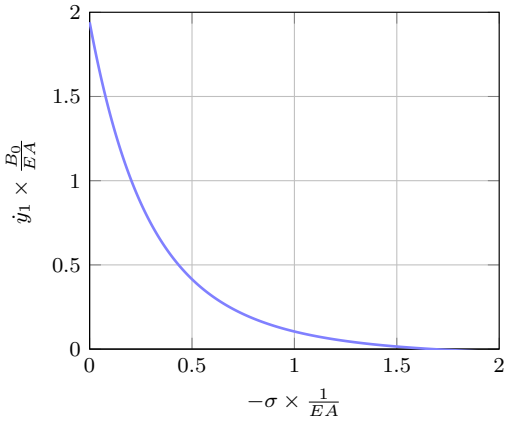

Figure 10. Force - velocity plot for $\sigma_{\mathrm{asym}} = 2EA$, $\sigma_{\max} = 0EA$, $\sigma_{\alpha 0} = -4EA$, $\sigma_{\alpha 1} = -1EA$, $\beta = 1.0$

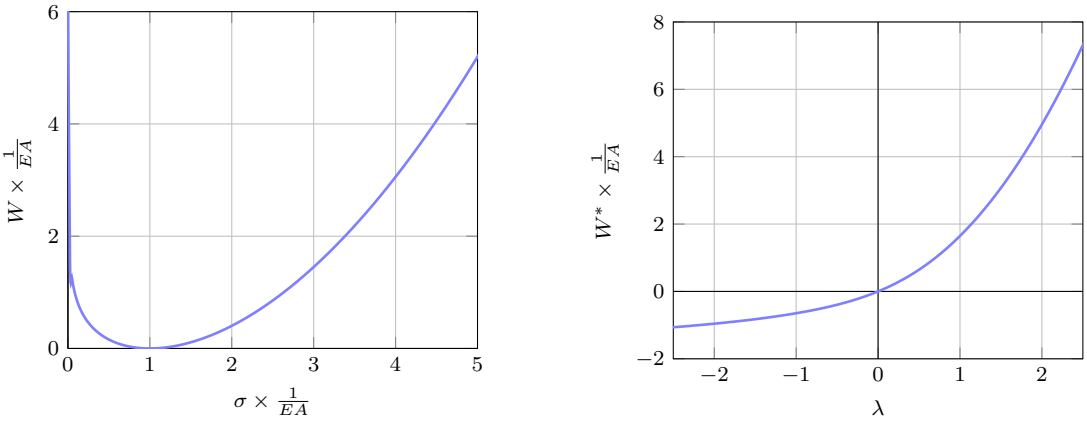

Figure 11. Plot of strain energy density W and complementary strain energy density W^* used for the examples.

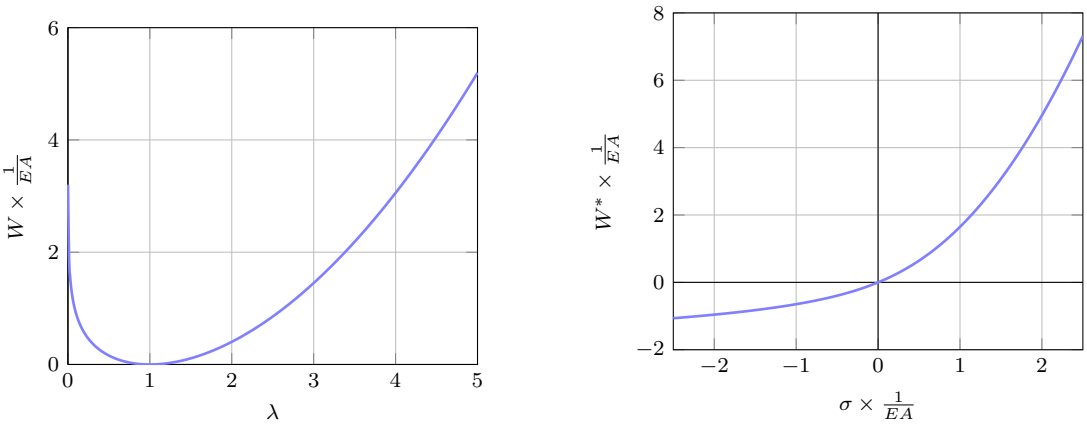

Figure 12. Plot of strain energy density W and complementary strain energy density W^* used for the examples.

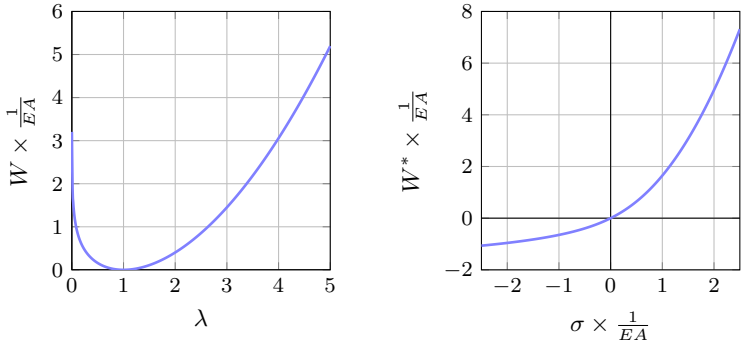

Figure 13. Plot of strain energy density W and complementary strain energy density W^* used for the examples.