Ay190 – Worksheet 16
David Vartanyan
Date: March 18, 2014

# 1

The code uses the mydata class of objects to store and easily access variables. We devise a grid over an x-domain and apply initial data. We reconstruct the primitives at cell interfaces and use our EOS to find pressure using a variety of different order methods (i.e. PC, TVD-minmod, TVD-MC2). We integrate forward in time using RK2 and find fluxes using Euler's equations.

See Figures 1, 2, 3, 4 for time evolution using the PC reconstruction.

See Figures 5 and 6 for the minmod and pc reconstructoins at 0.399s. All Figures include density, velocity, and pressure evolutions. The x-axes is the spatial domain.

We see the development and spilling over of a density divide on the shock front. The plots exhibit similar behavior to the exact solution from ws15.

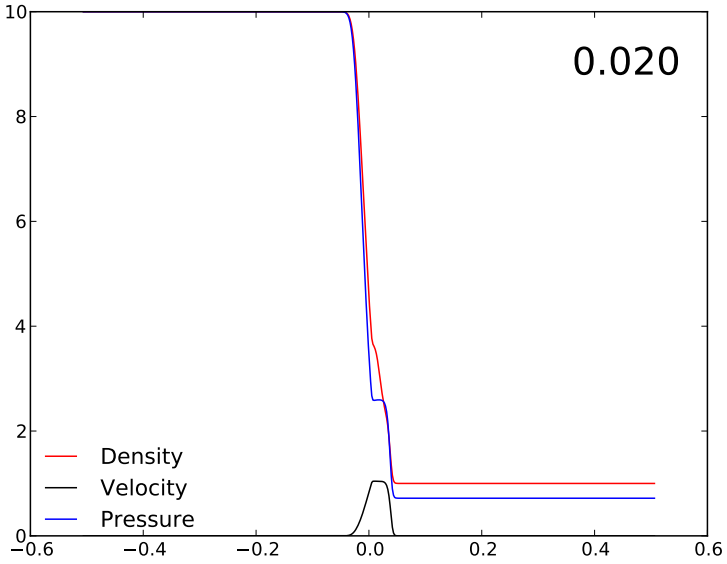


Figure 1: Shocks 0.02 seconds in

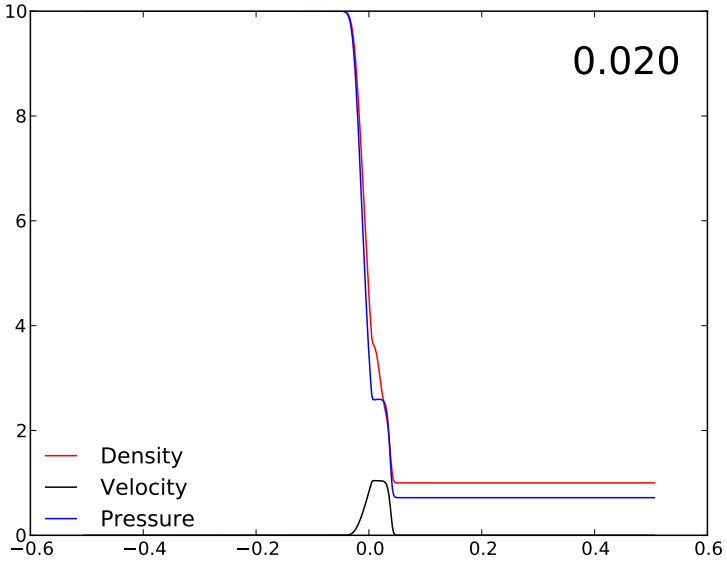


Figure 2: Shocks 0.065 seconds in

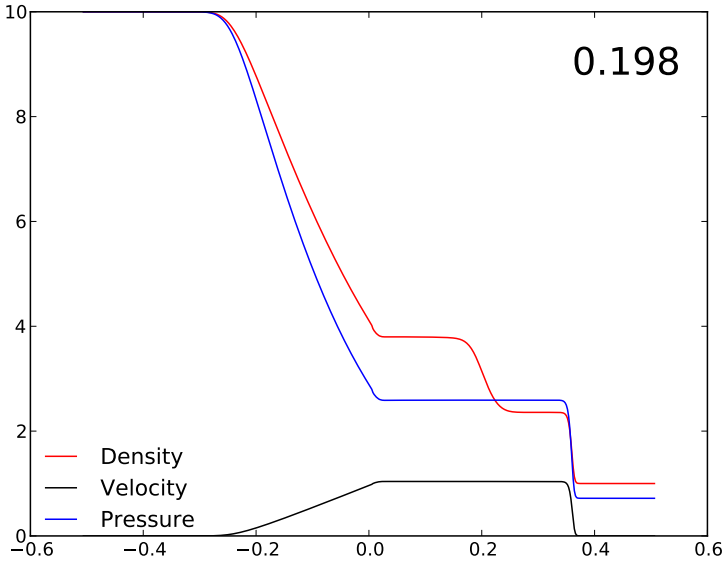


Figure 3: Shocks 0.195 seconds in

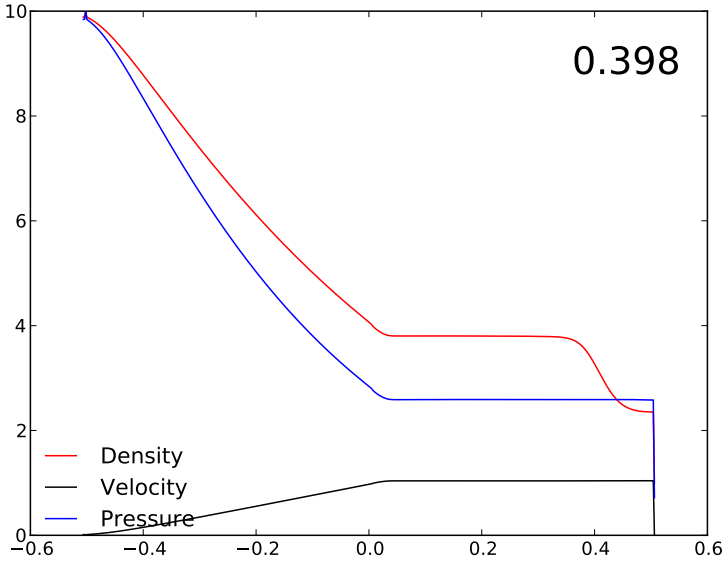


Figure 4: Shocks 0.398 seconds in

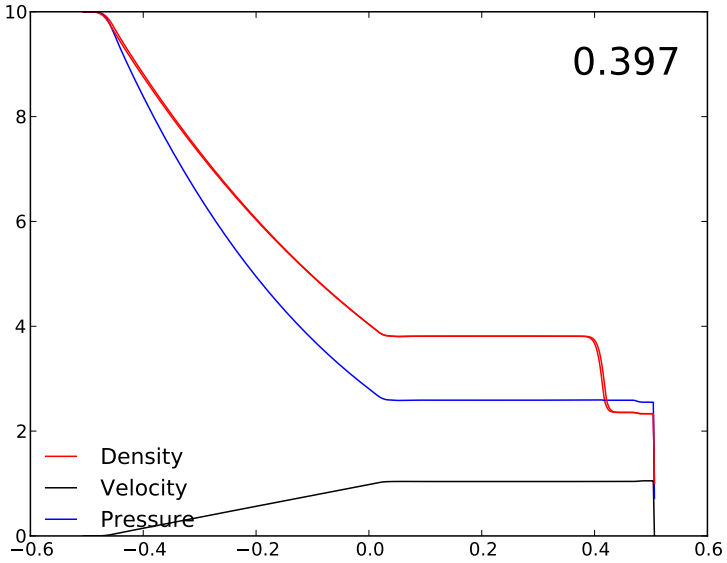


Figure 5: minmod 0.399s in

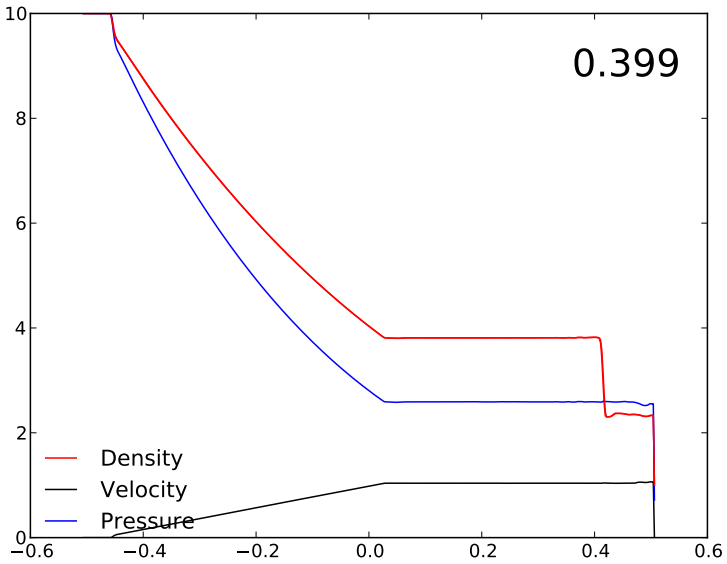


Figure 6: mc 0.399 seconds in