McGill University

Computational Gasdynamics

MECH 516

Project 1

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Question 1

Figure 1 shows a left-facing rarefaction and a right-facing shock. The control surface has moved further into the driven section. The tail of the expansion fan has a positive velocity since it is now located in the driven section.
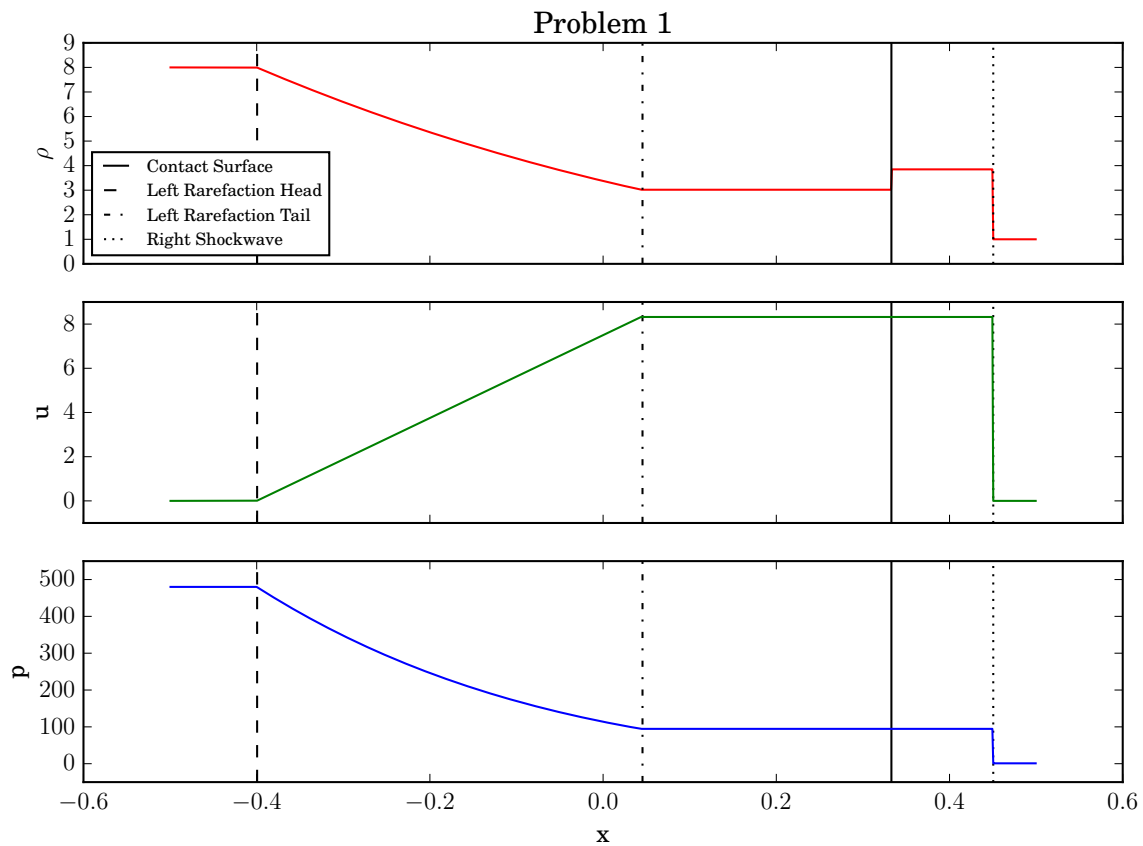

Figure 1: Problem 1: Rarefaction-shock

Question 2

Figure 2 shows left-facing and right-facing rarefactions. The contact surface velocity is zero as shown on the velocity plot, and we can confirm it has not moved from its original position $x = x_0$.
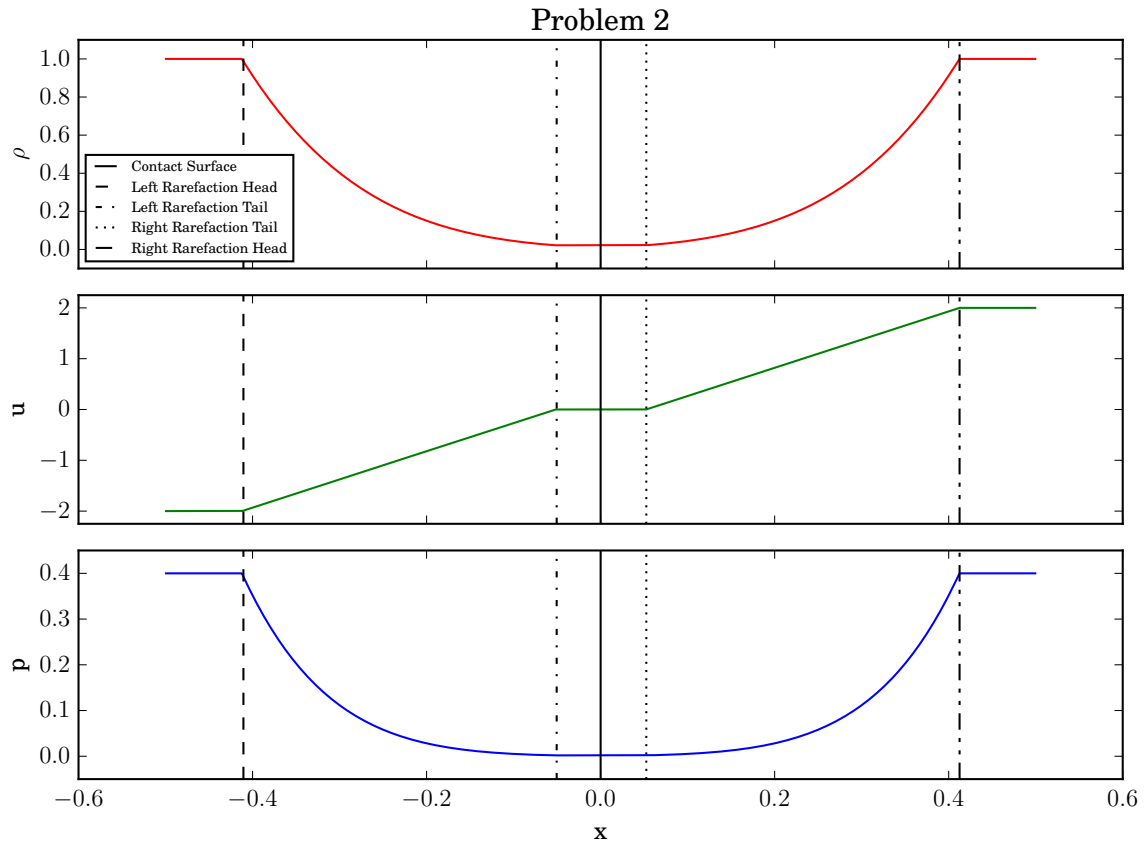
Figure 2: Problem 2: Rarefaction-Rarefaction

Question 3

Figure 3 shows a left-facing rarefaction and a right-facing shock. This test cases exhibits the same features as in Problem 1.
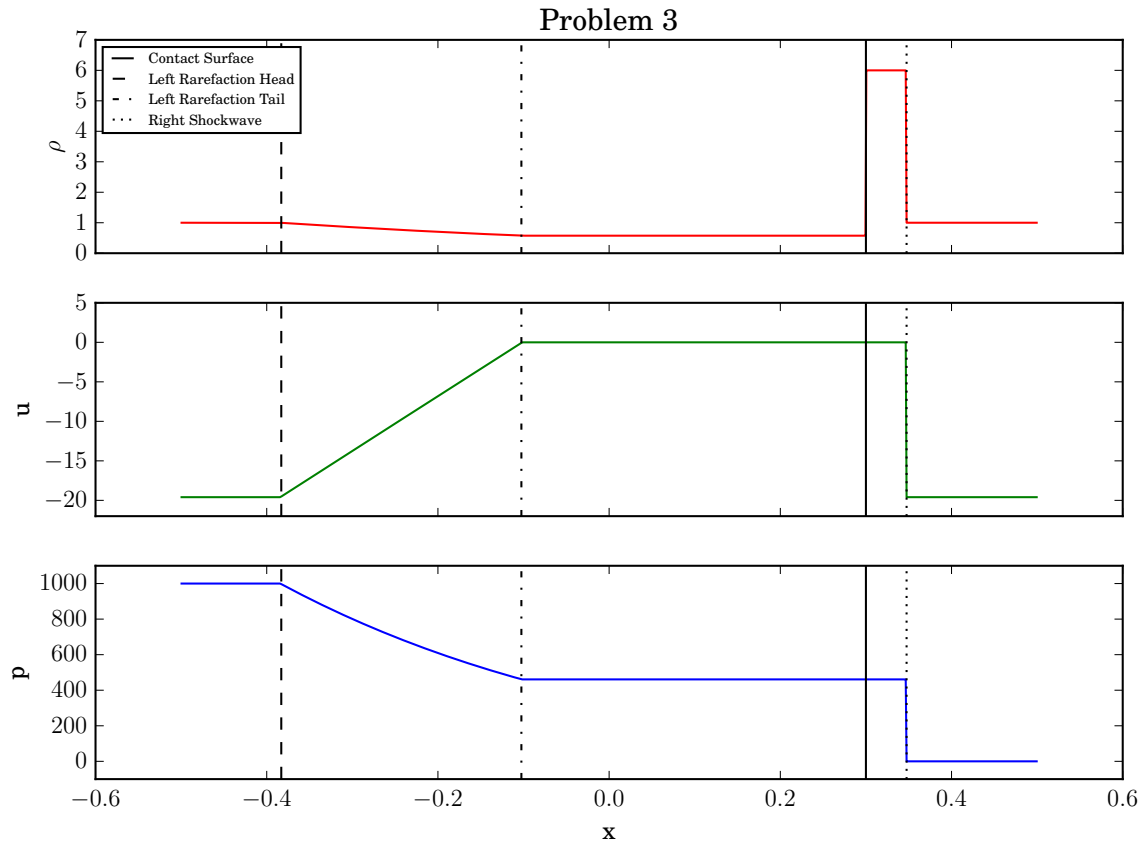
Figure 3: Problem 3: Rarefaction-shock

Code

Code has been written in FORTRAN available on my Github

https://github.com/dougshidong/mech539/tree/master/a5