Computational Aerodynamics Questions & Answers

Question by Prasanna

Professor, for Assignment #7, Question #3, are the answers posted in the following order: u_L, u_R in decimal digits, u_R in fraction, $f(u_L)$ in decimal digits, $f(u_L)$ in fraction respectively?

I updated the answers to make them more clear.

Question by Student 201983196

Professor, In Assignment#7, Question#2 (b), I use 2nd order polynomial about node(4,5,6) and node(5,6,7). and then using optimal weight, calculate u_R. but my solution is wrong. I don't know how to solve this Question#2(b).

Hm, I see a problem in your approach. You shouldn't be finding a polynomial when determining the flux with a TVD minmod2 limiter.

Question by Student 201627128

Professor, in class when you explained how to find WENO3, you found a highest degree polynomial through the data points. Using a similar approach I was able to find u_L equal to 4.5 as in the solutions, however, when I apply the same strategy to find u_R, I get 4.25 instead, which does not match the solution. I tried to do it in reconstruction evolution and again found 4.5 for u_L but this time u_R becomes 5. Is there a separate approach to find u_R?

I don't understand why using reconstruction-evolution would give you a different answer. You need to find u_R by interpolating u. Once u is interpolated and u_L and u_R are found, then apply reconstruction evolution.

Question by Prasanna

Professor, for assignment #7, question #3 (c), I did my calculation as follows: I get a slightly different answer from my calculation. However, the answer is the same as the one posted only if I choose the wavespeed $a = u$ and not $a = u/2$.

For f and u given, there is only one wave speed not two.