

# Test Results for Mesh Hydro Code

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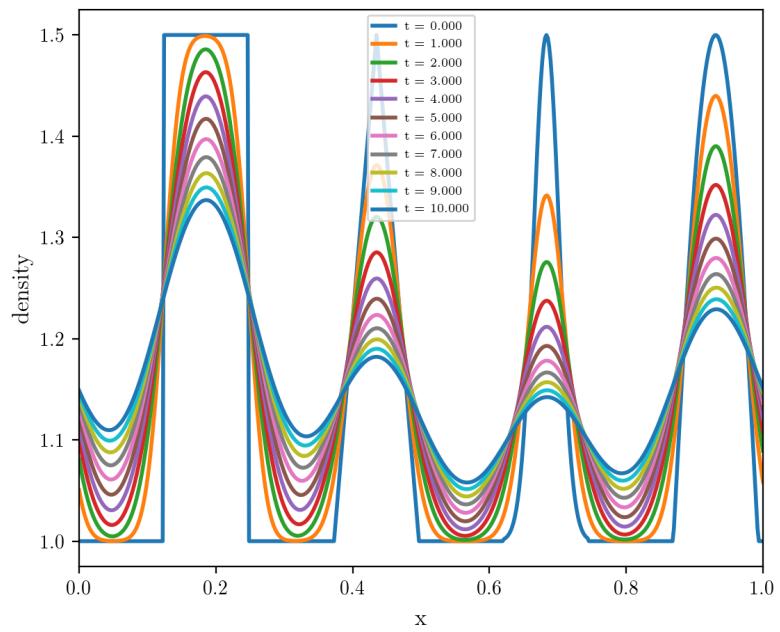
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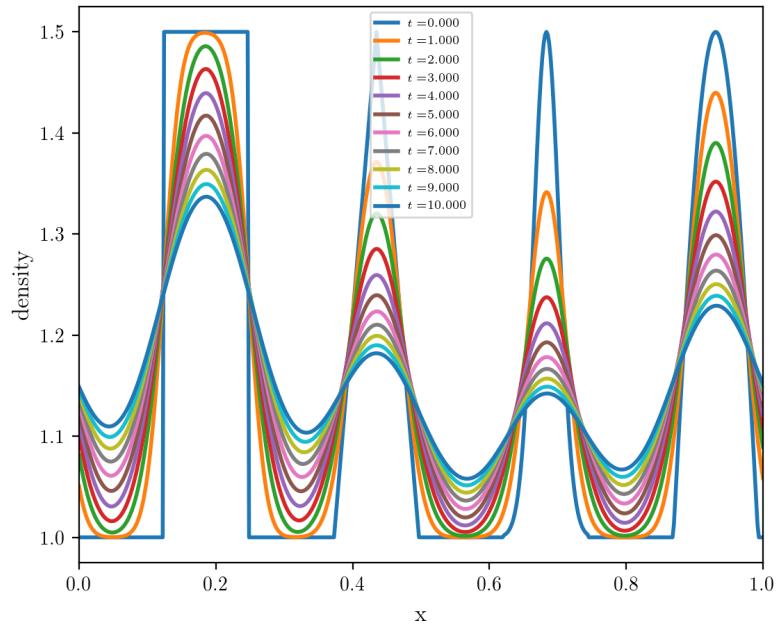
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# 1 Advection

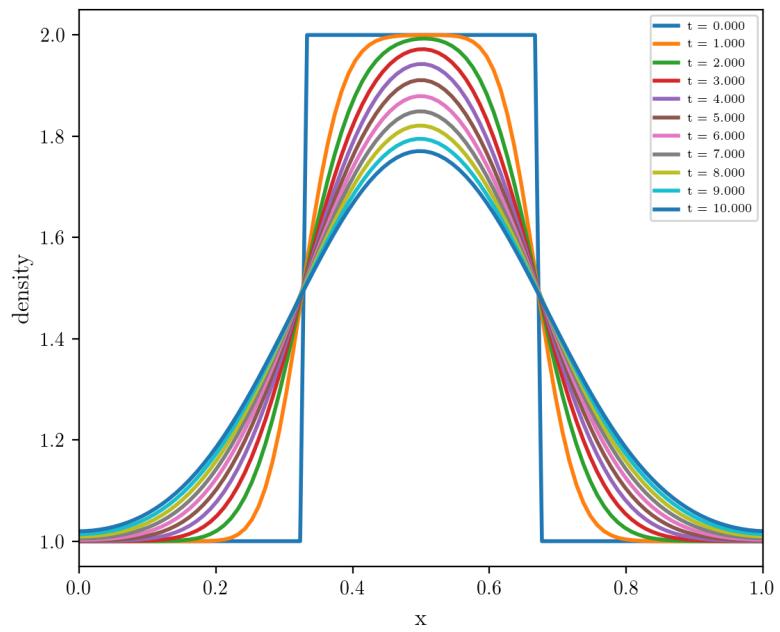
## 1.1 Piecewise Constant



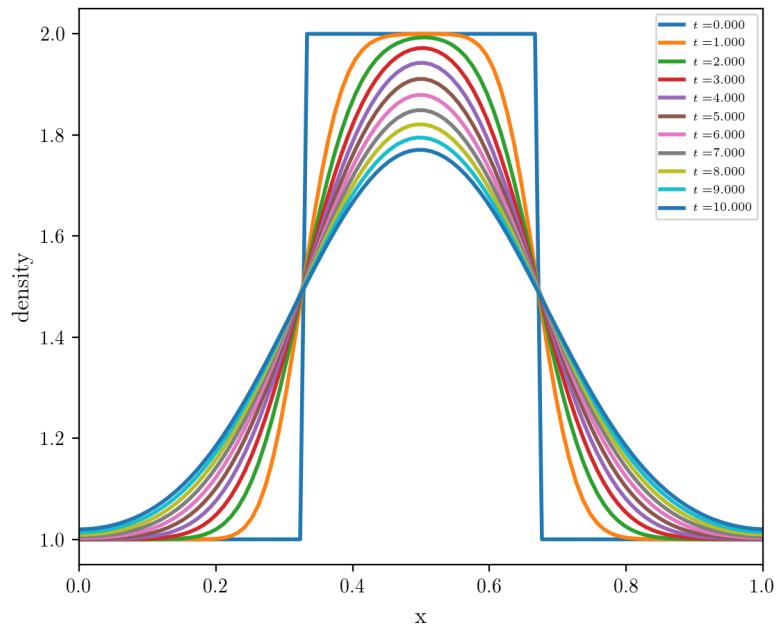
**Figure 1:** Expected result 1D



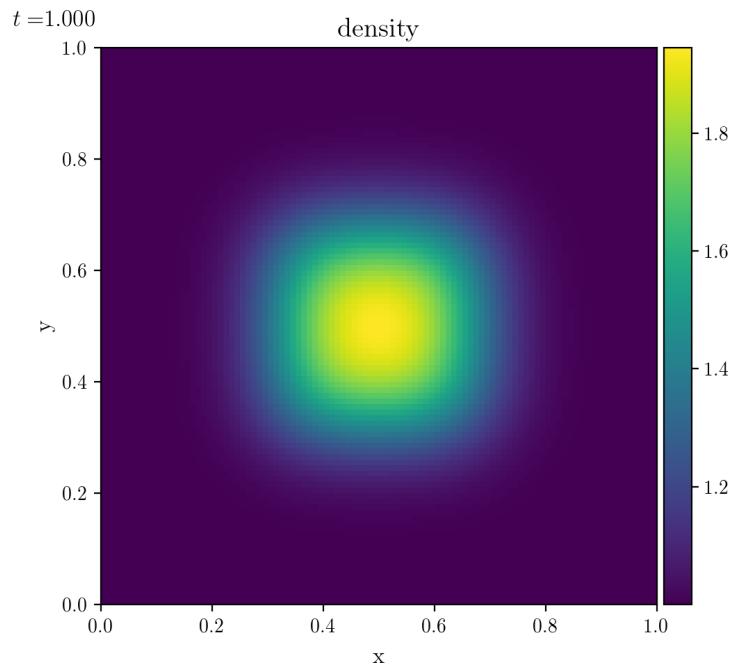
**Figure 2:** Obtained result 1D



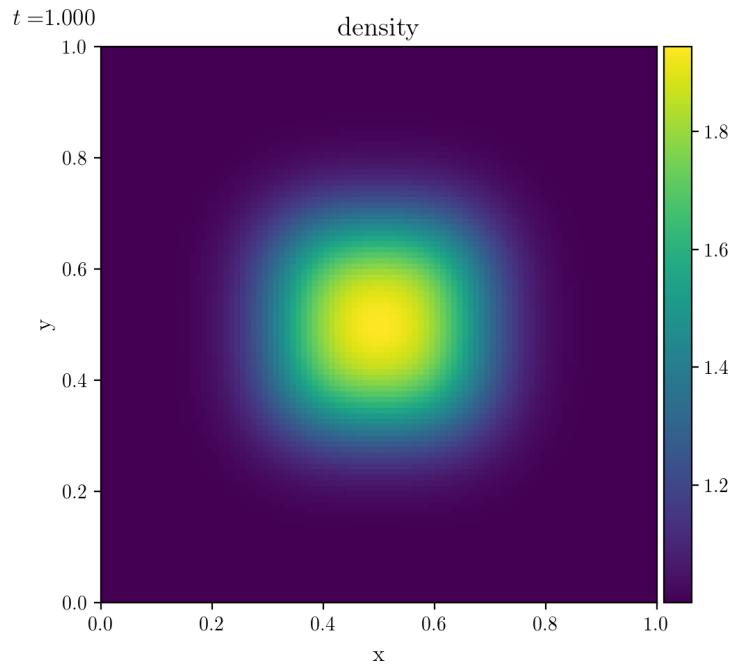
**Figure 3:** Expected result 1D negative velocity



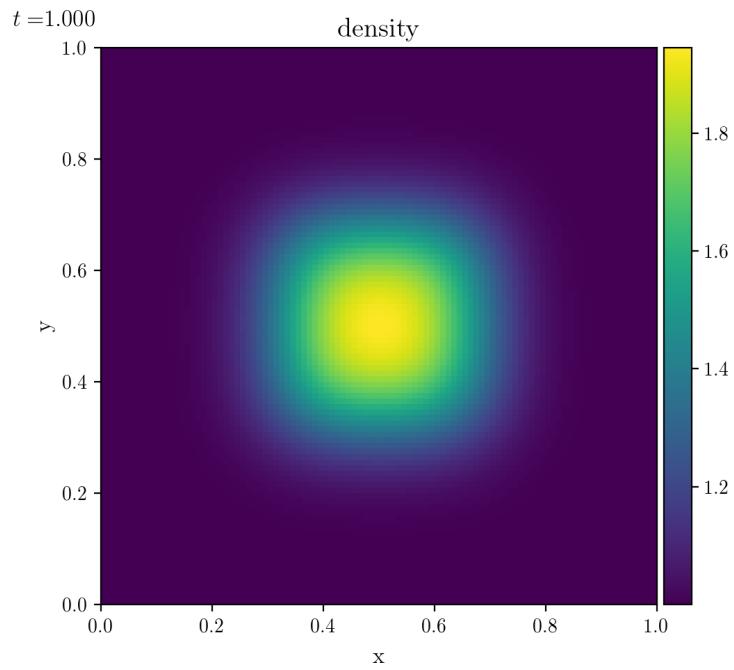
**Figure 4:** Obtained result 1D negative velocity



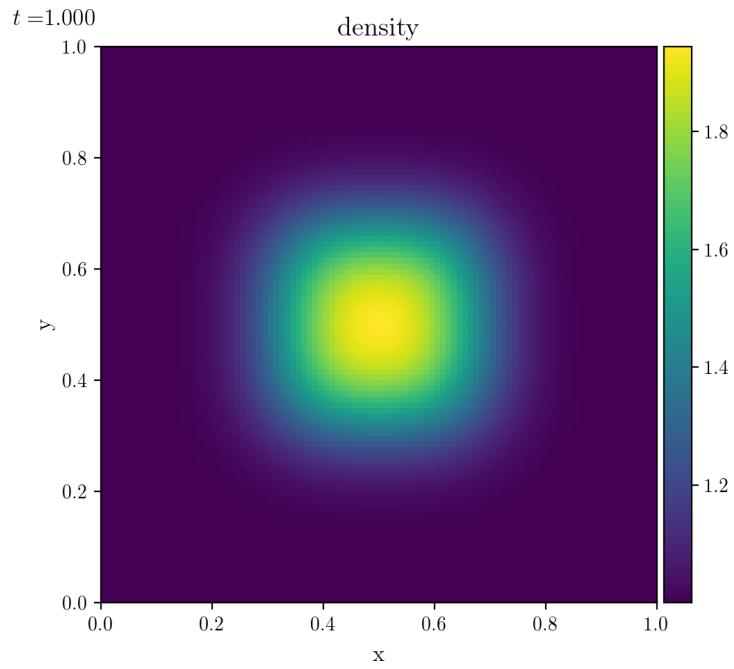
**Figure 5:** Expected result 2D



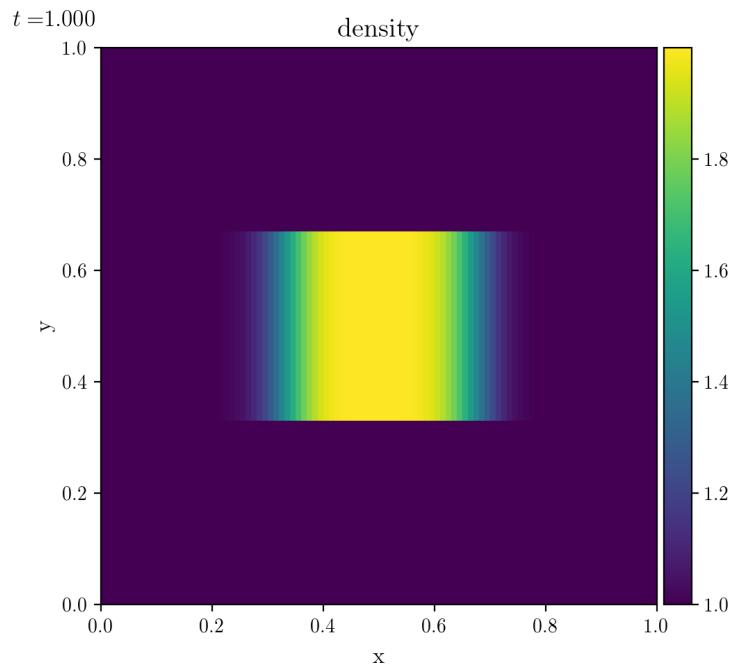
**Figure 6:** Obtained result 2D



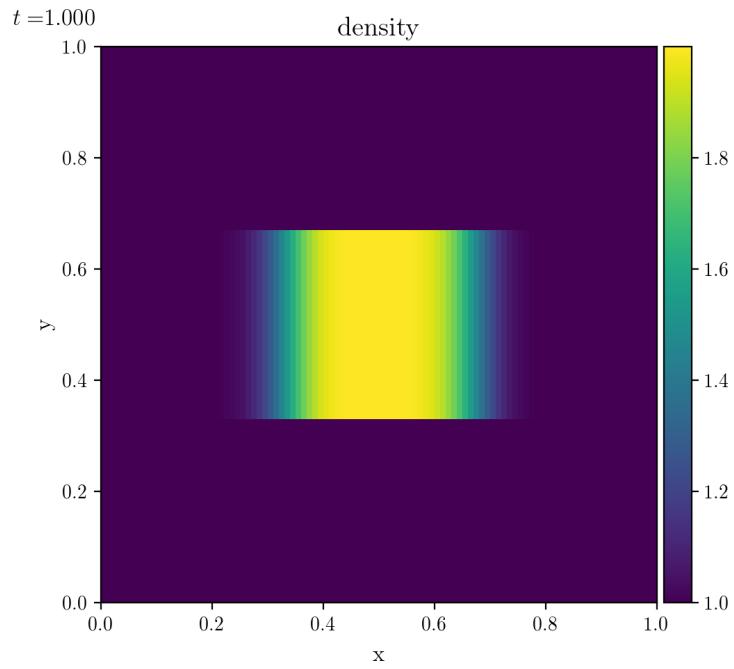
**Figure 7:** Expected result 2D negative velocity



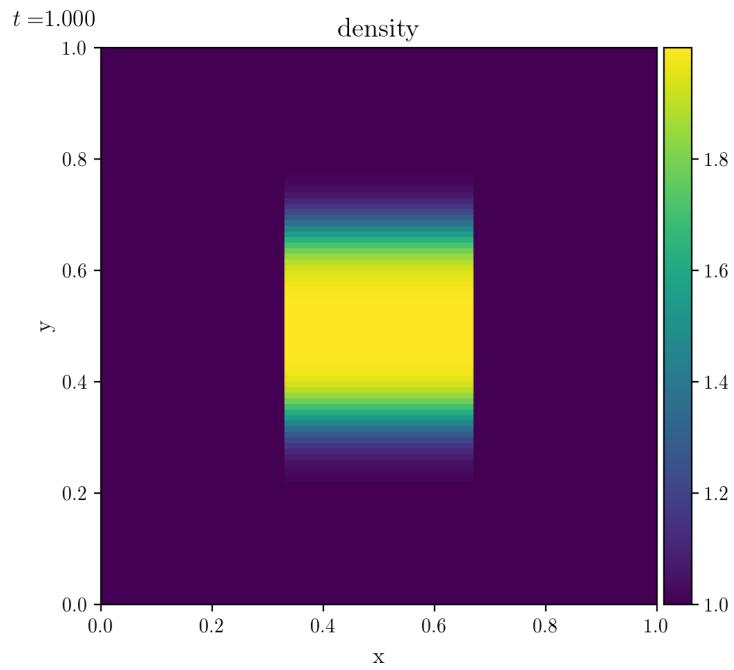
**Figure 8:** Obtained result 2D negative velocity



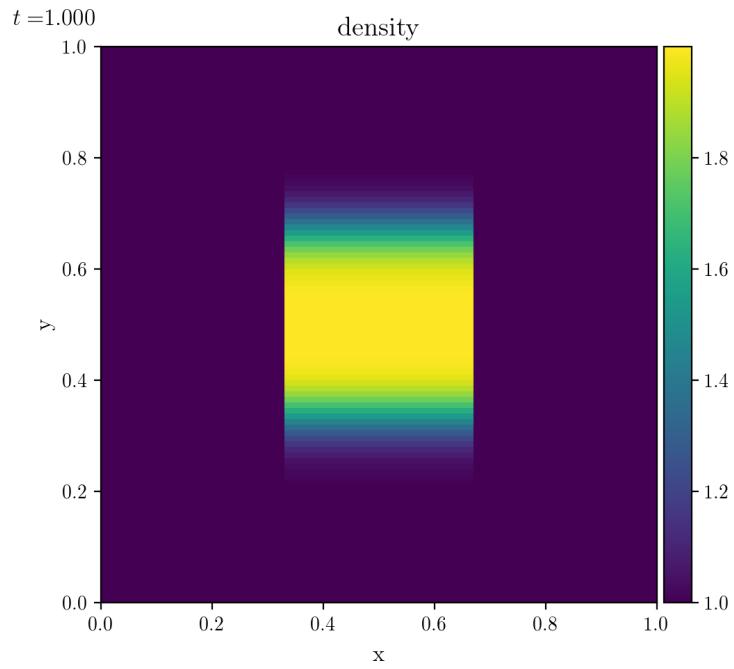
**Figure 9:** Expected result 2D velocity in x direction only



**Figure 10:** Obtained result 2D velocity in x direction only

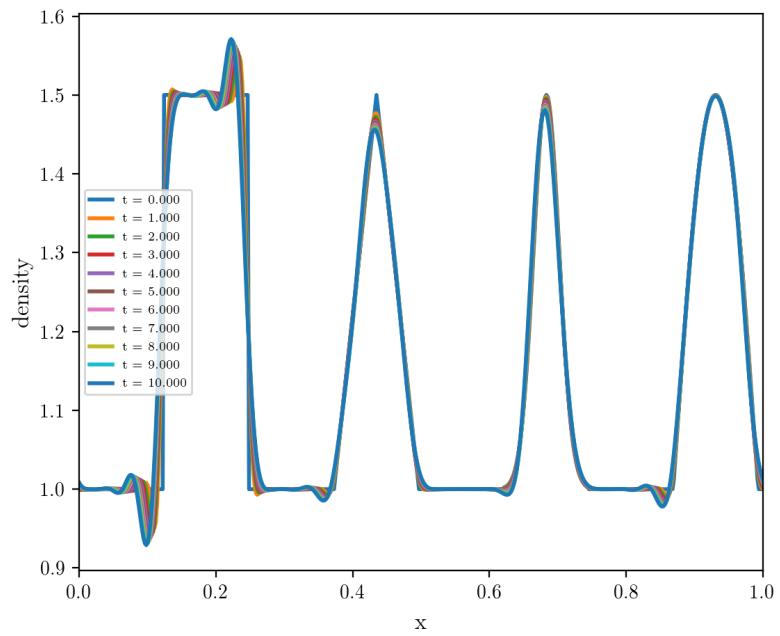


**Figure 11:** Expected result 2D velocity in y direction only

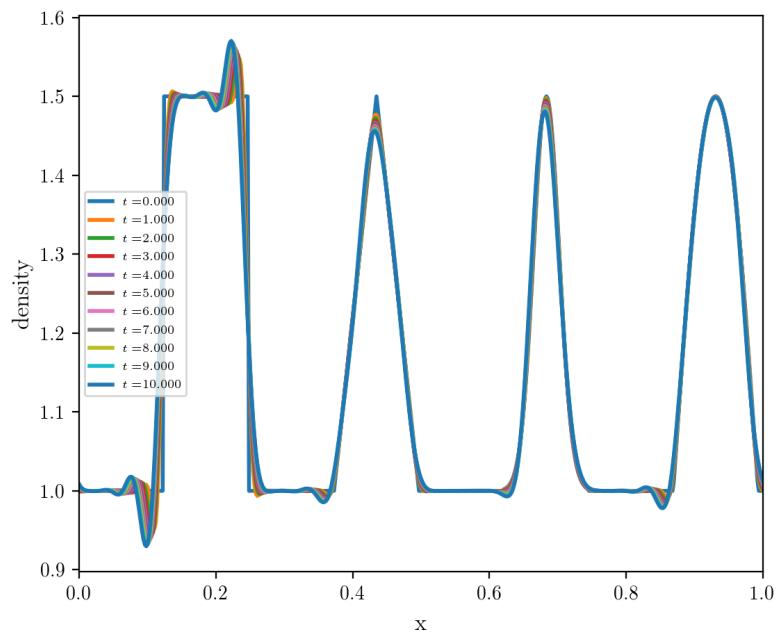


**Figure 12:** Obtained result 2D velocity in y direction only

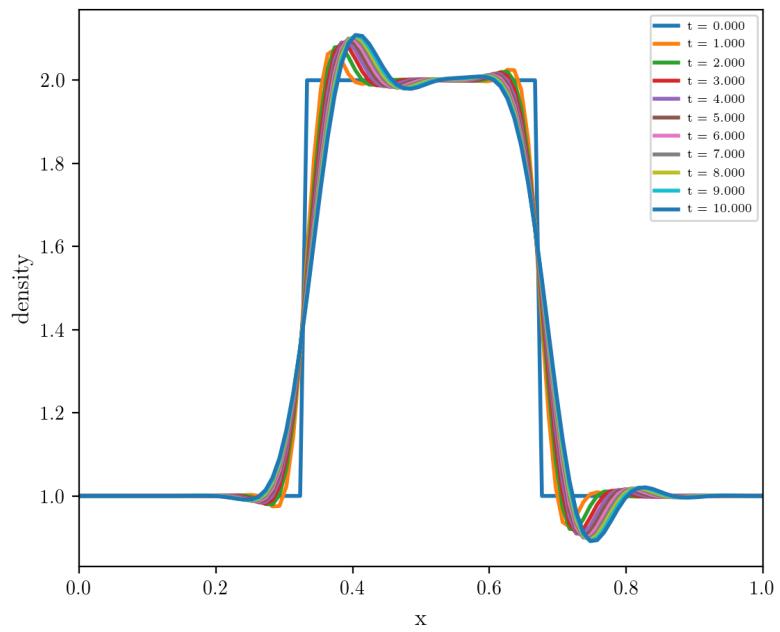
## 1.2 Piecewise Linear



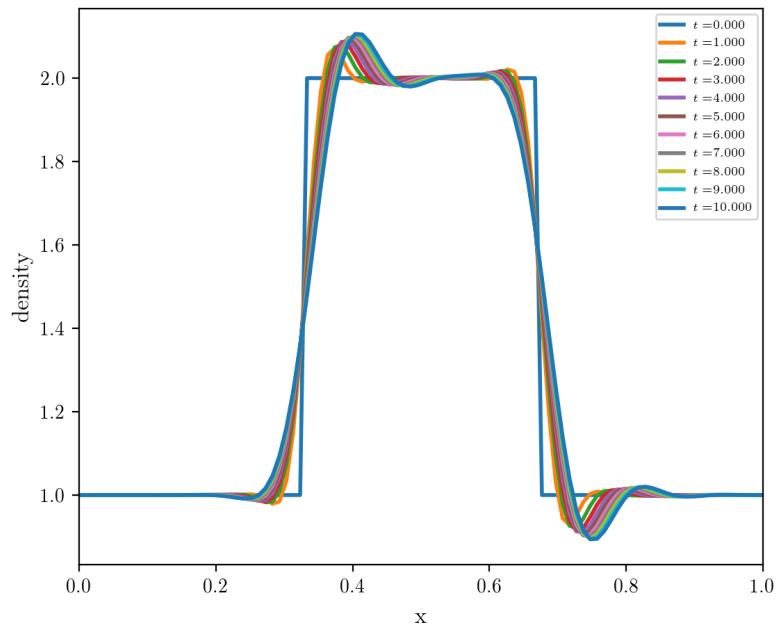
**Figure 13:** Expected result 1D



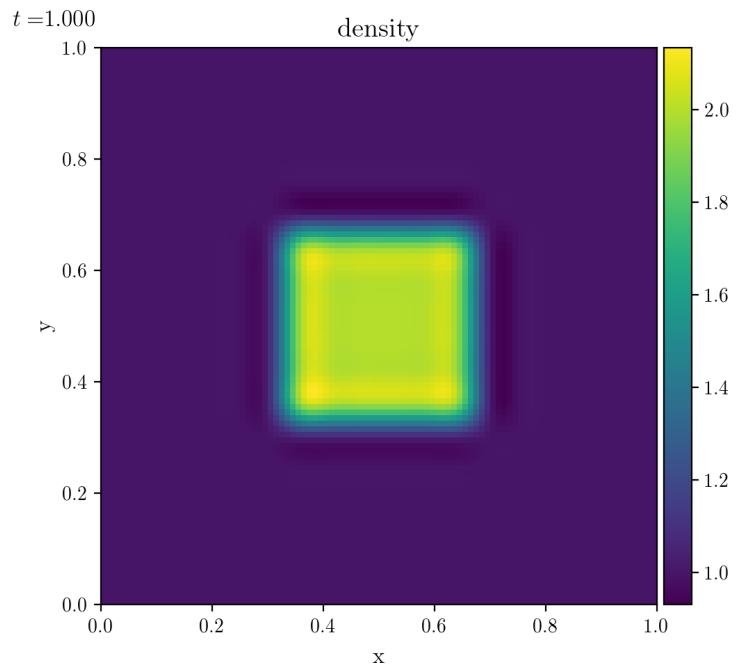
**Figure 14:** Obtained result 1D



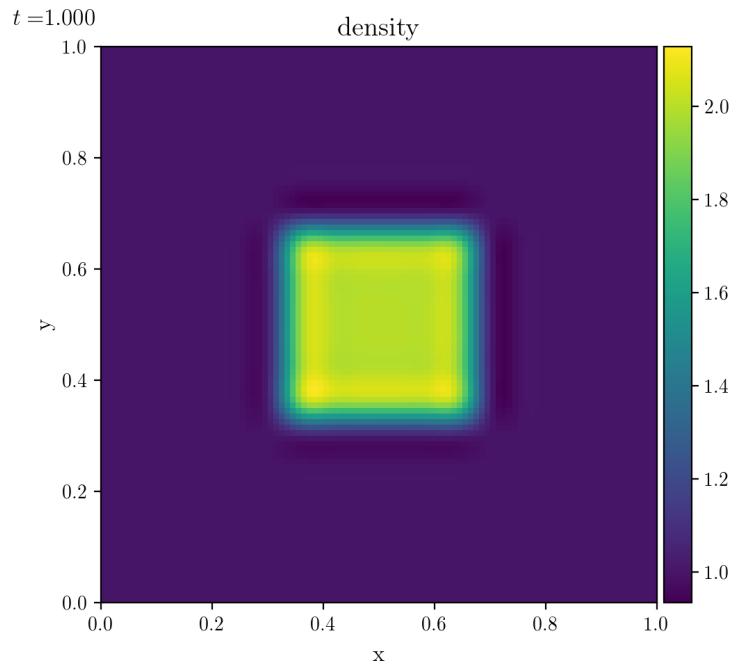
**Figure 15:** Expected result 1D negative velocity



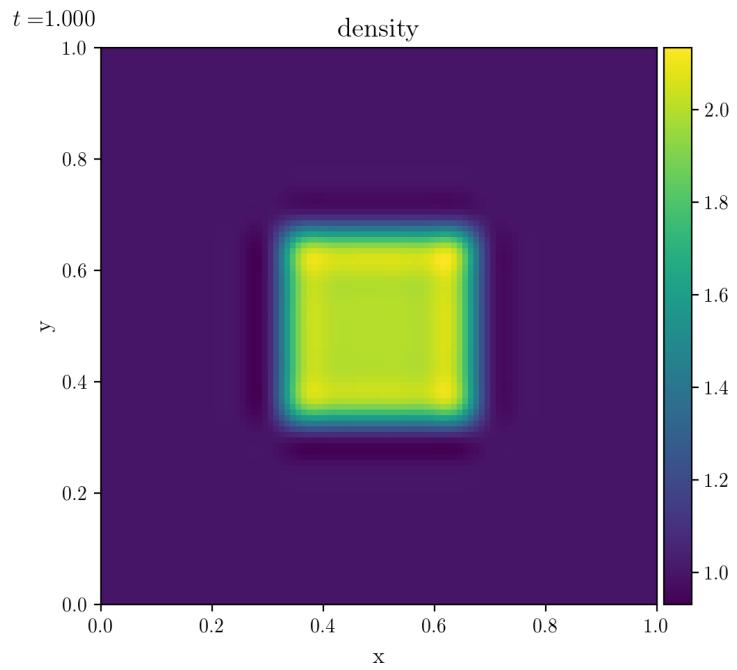
**Figure 16:** Obtained result 1D negative velocity



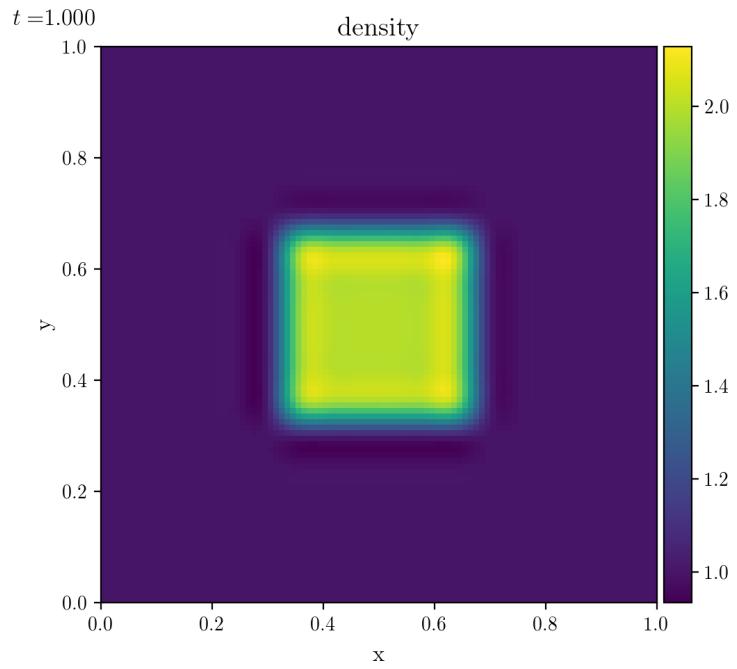
**Figure 17:** Expected result 2D



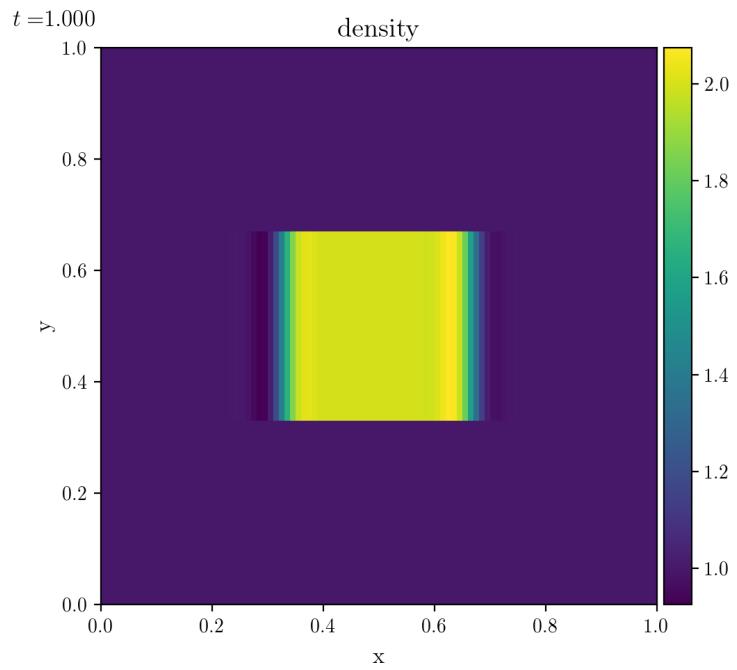
**Figure 18:** Obtained result 2D



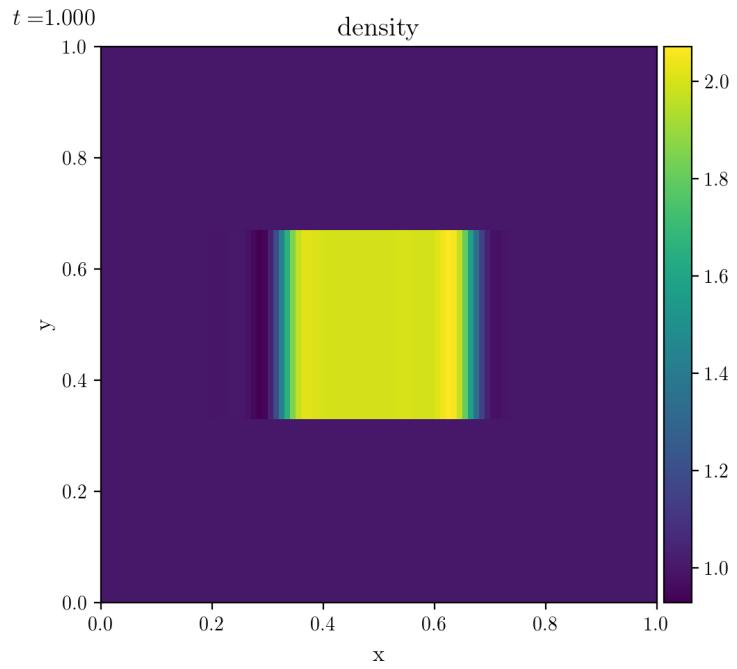
**Figure 19:** Expected result 2D negative velocity



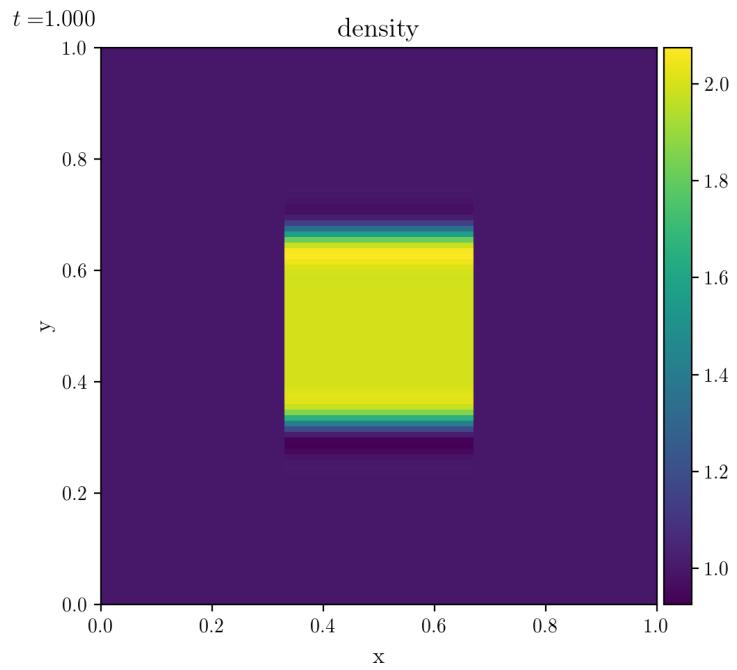
**Figure 20:** Obtained result 2D negative velocity



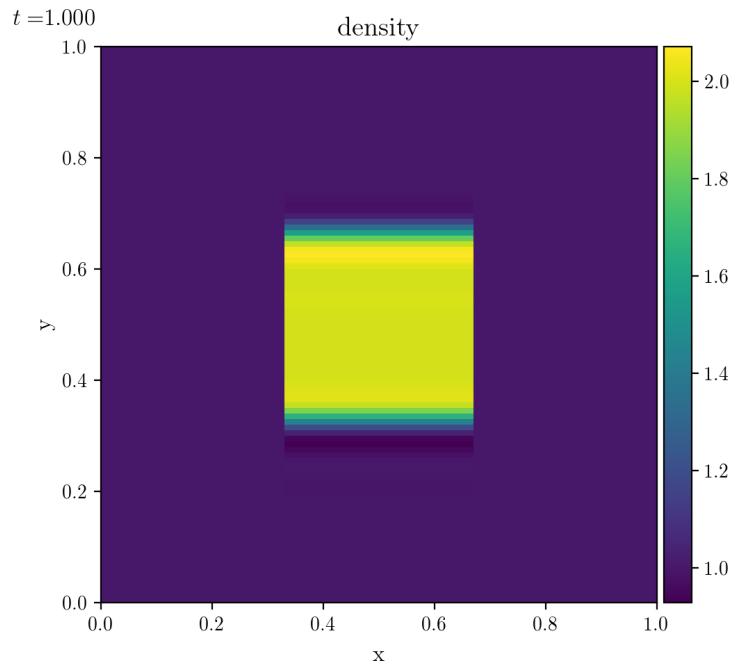
**Figure 21:** Expected result 2D velocity in x direction only



**Figure 22:** Obtained result 2D velocity in x direction only

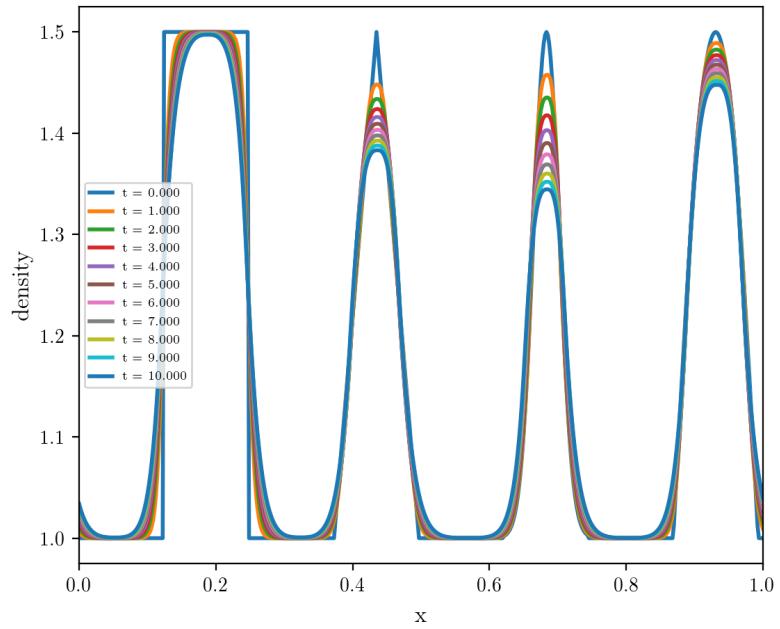


**Figure 23:** Expected result 2D velocity in y direction only

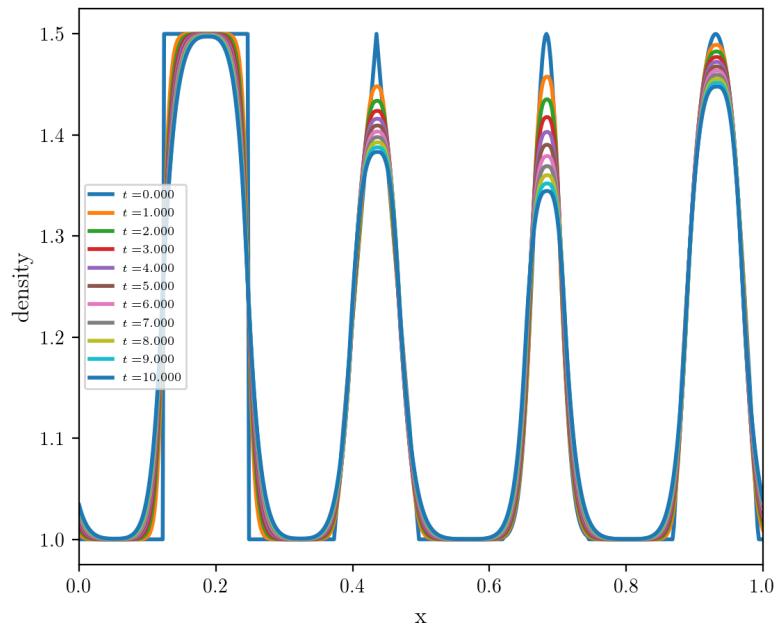


**Figure 24:** Obtained result 2D velocity in y direction only

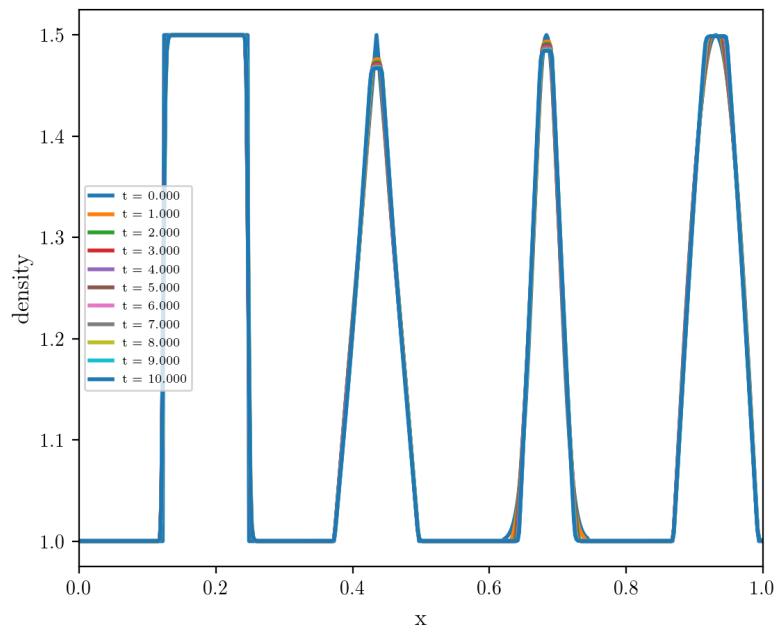
### 1.3 Piecewise Linear with Slope Limiters



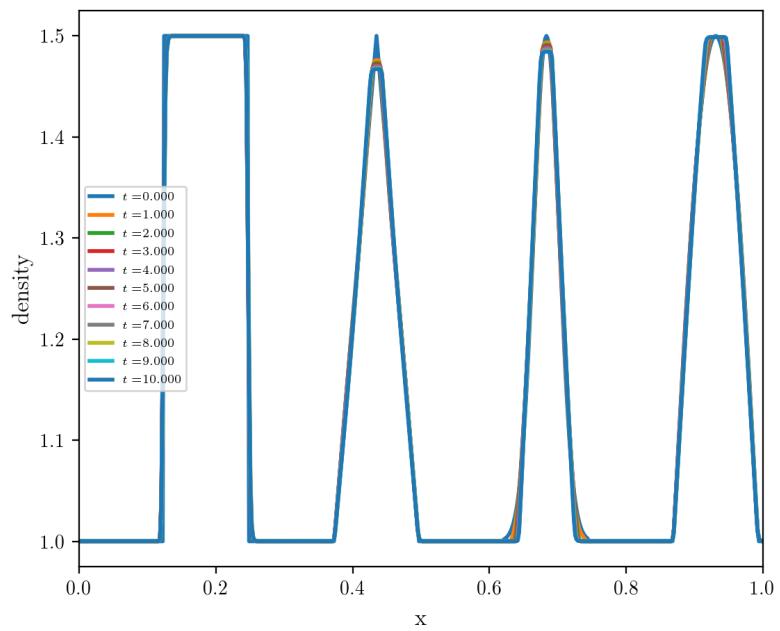
**Figure 25:** Minmod Slope Limiter. Expected result 1D



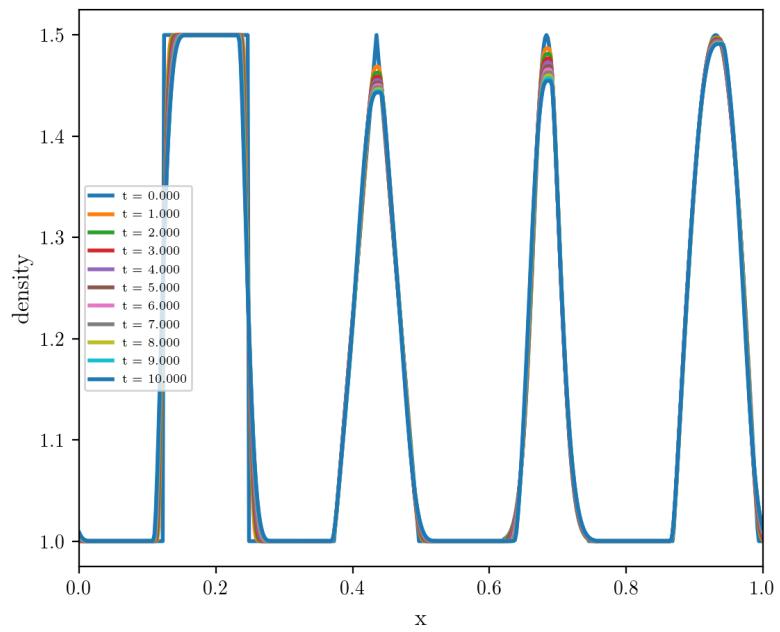
**Figure 26:** Minmod Slope Limiter. Obtained result 1D



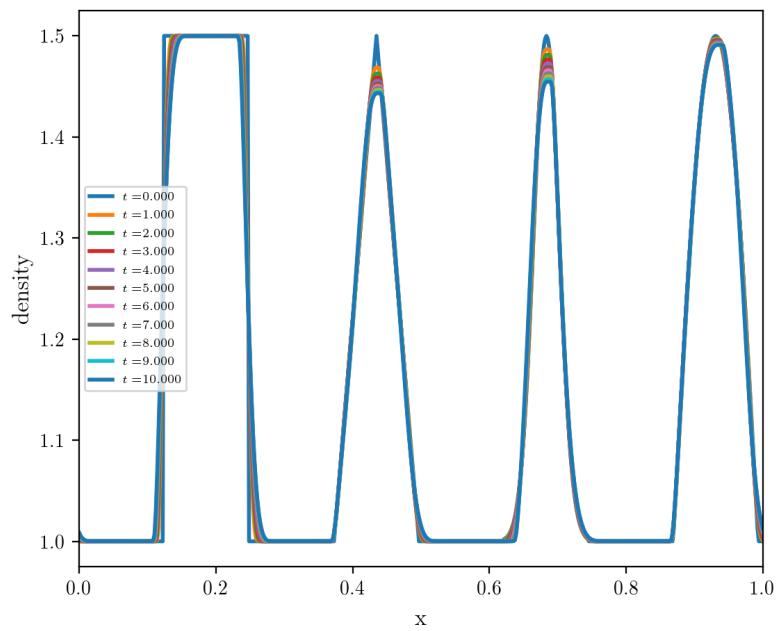
**Figure 27:** Superbee slope limiter. Expected result 1D negative velocity



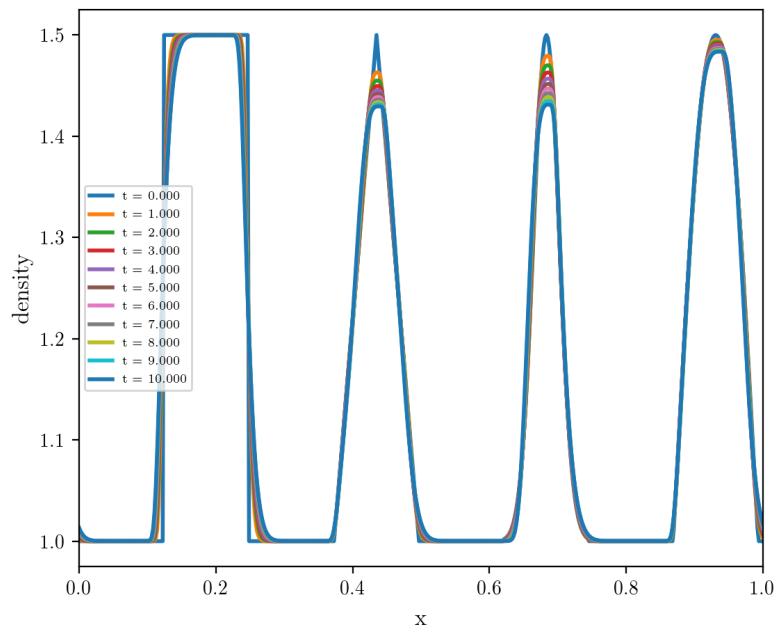
**Figure 28:** Superbee slope limiter. Obtained result 1D negative velocity



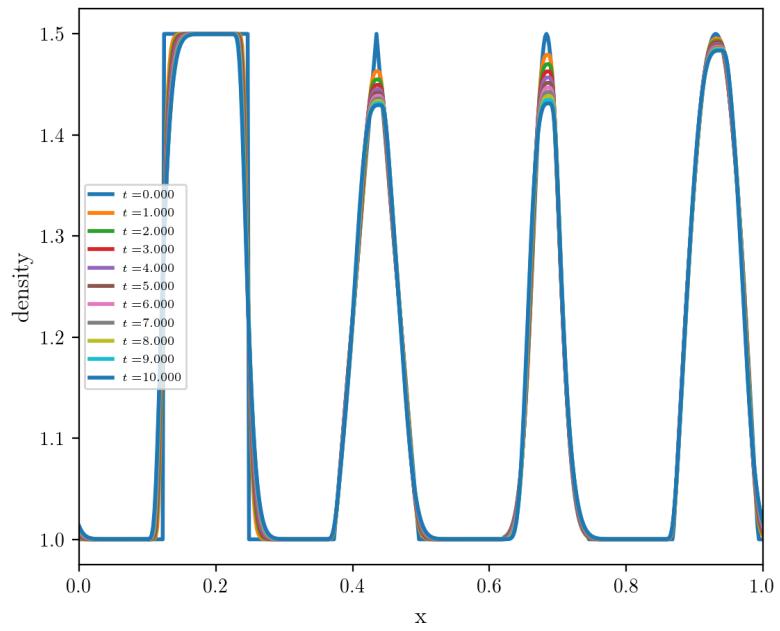
**Figure 29:** Monotonized central limiter. Expected result 1D



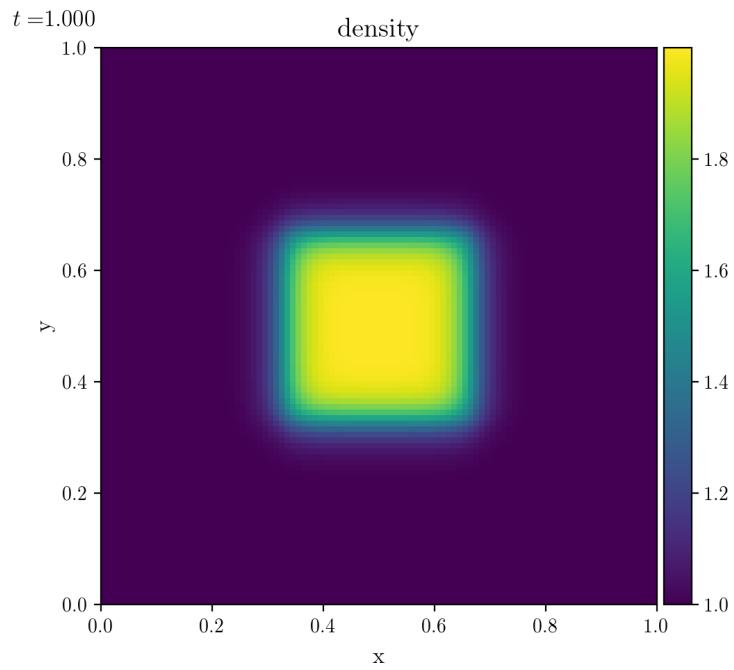
**Figure 30:** Monotonized central limiter. Obtained result 1D



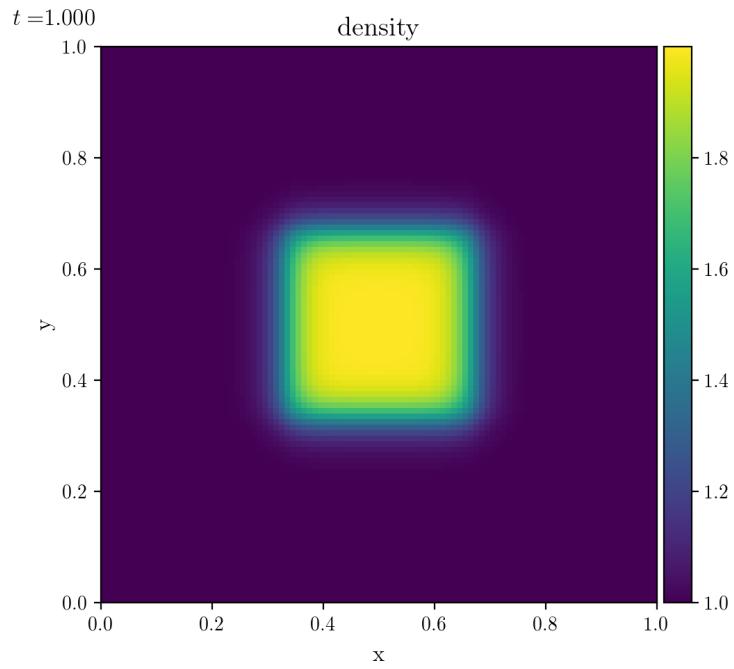
**Figure 31:** Van Leer Limiter. Expected result 1D



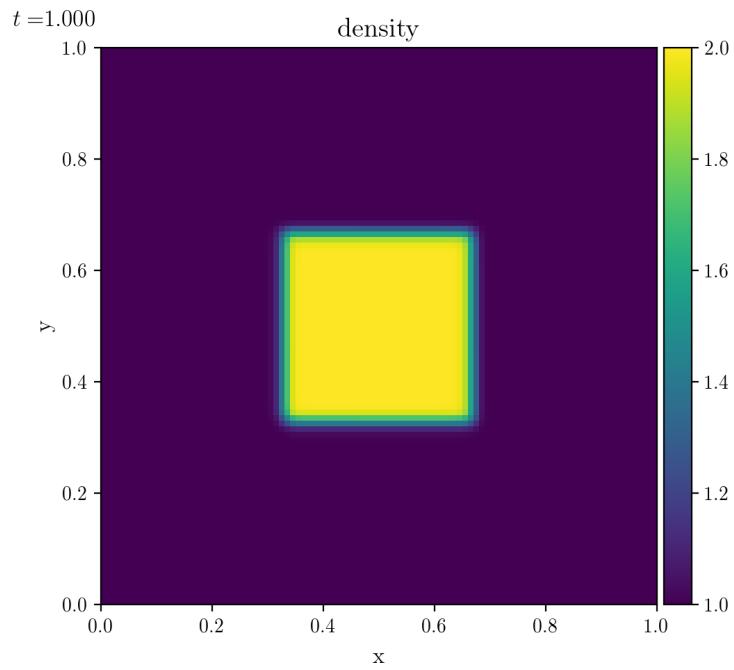
**Figure 32:** Van Leer Limiter. Obtained result 1D



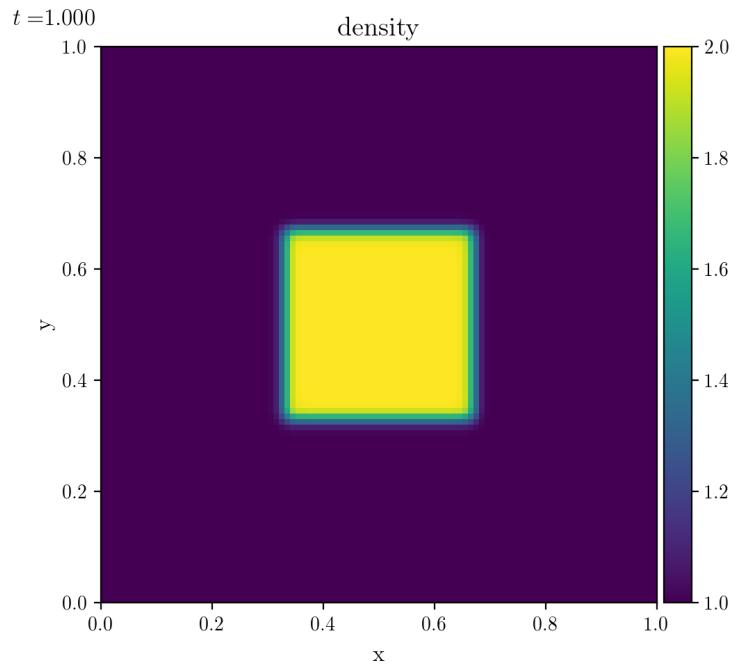
**Figure 33:** Minmod Slope Limiter. Expected result 2D



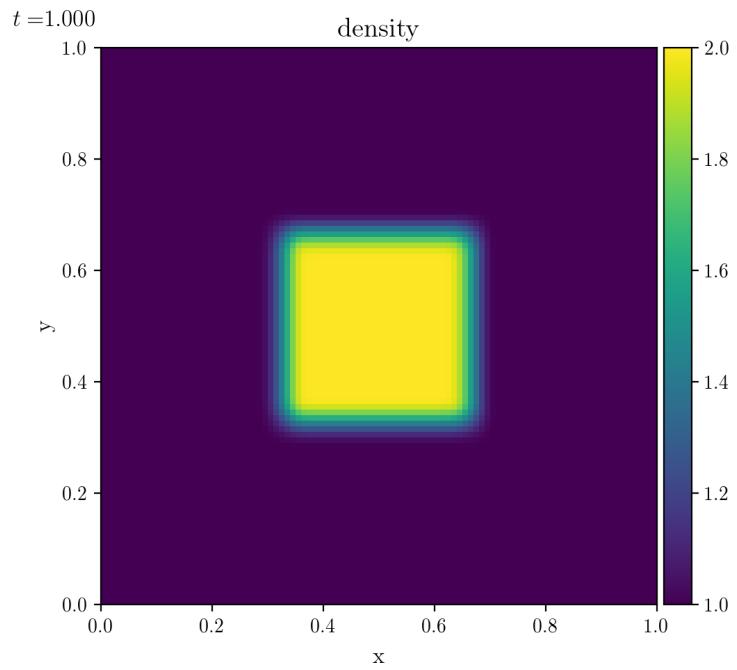
**Figure 34:** Minmod Slope Limiter. Obtained result 2D



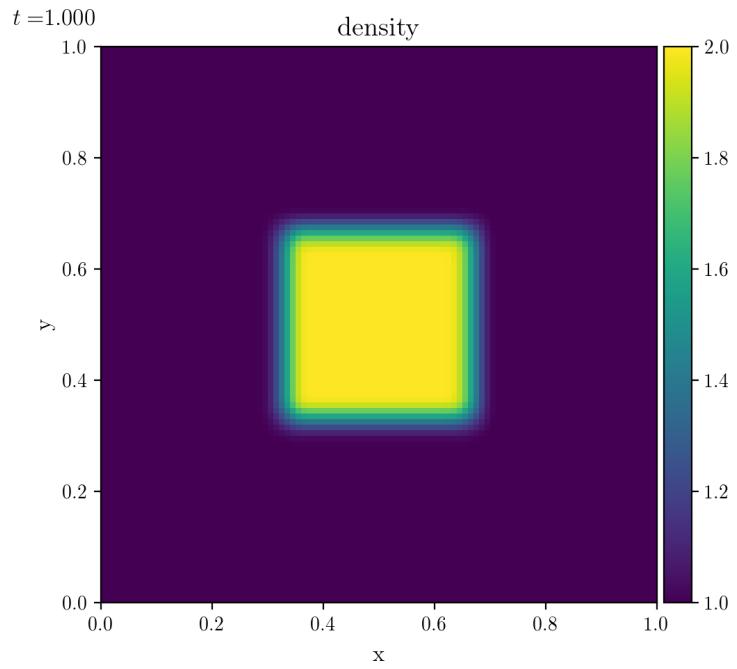
**Figure 35:** Superbee slope limiter. Expected result 2D negative velocity



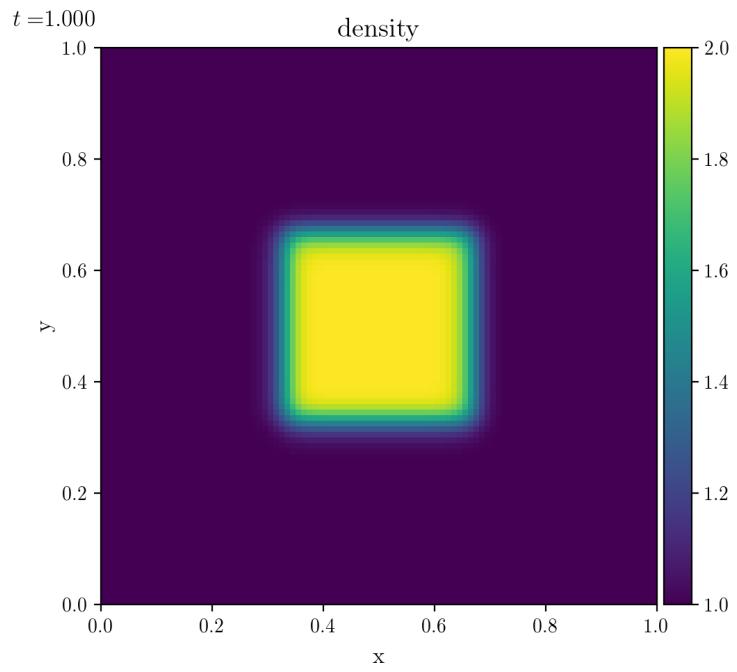
**Figure 36:** Superbee slope limiter. Obtained result 2D negative velocity



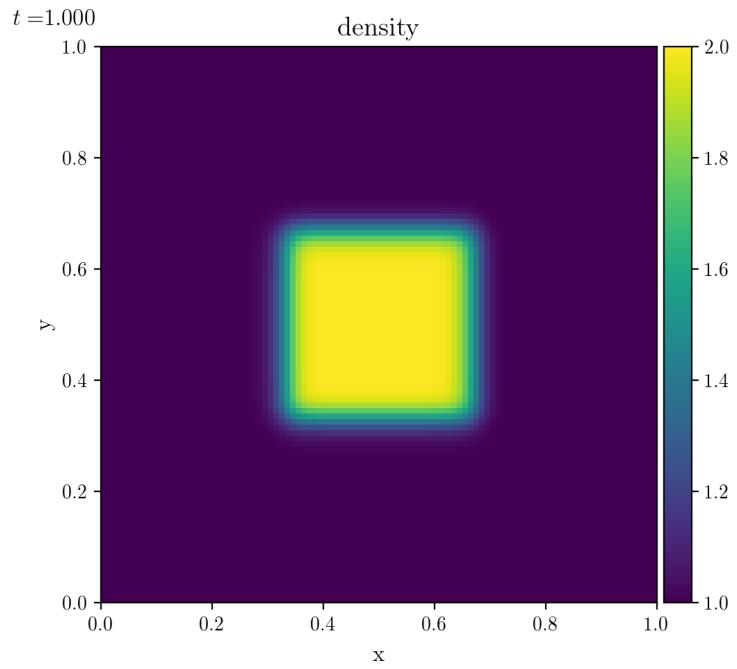
**Figure 37:** Monotonized central limiter. Expected result 2D



**Figure 38:** Monotonized central limiter. Obtained result 2D

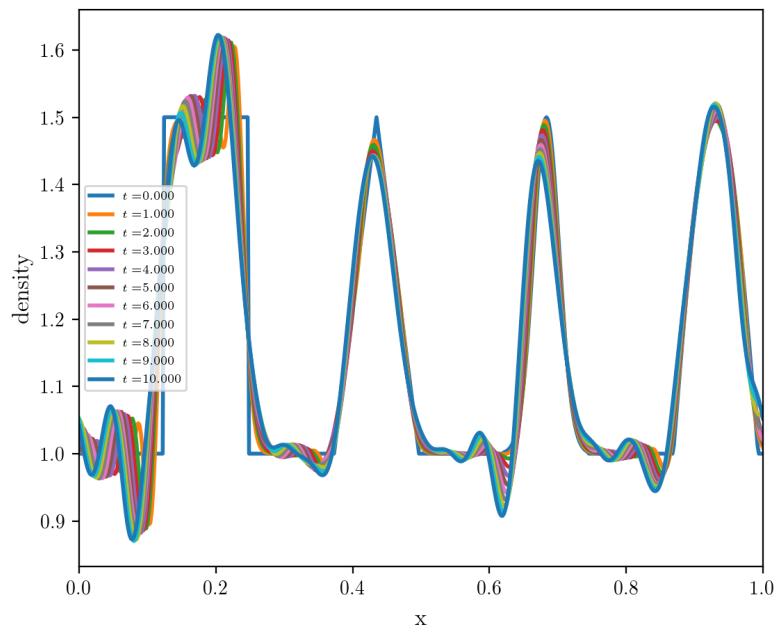


**Figure 39:** Van Leer Limiter. Expected result 2D

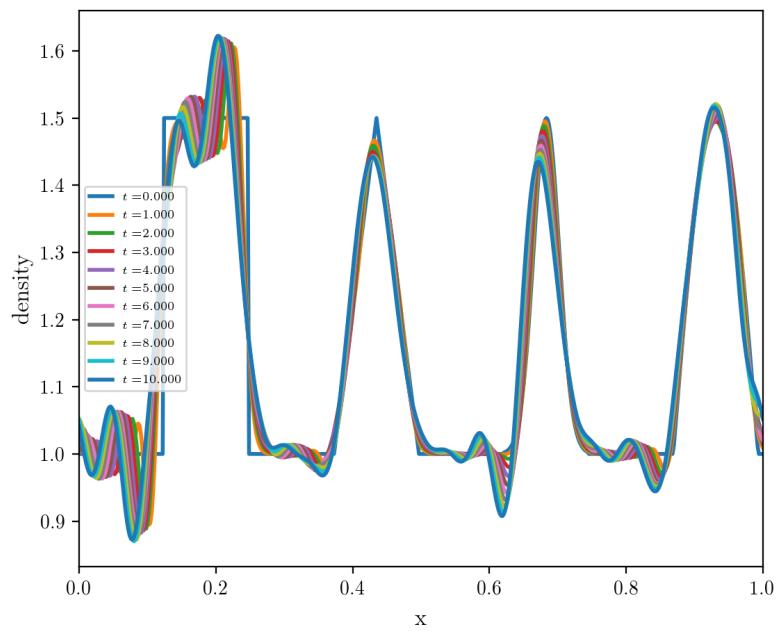


**Figure 40:** Van Leer Limiter. Obtained result 2D

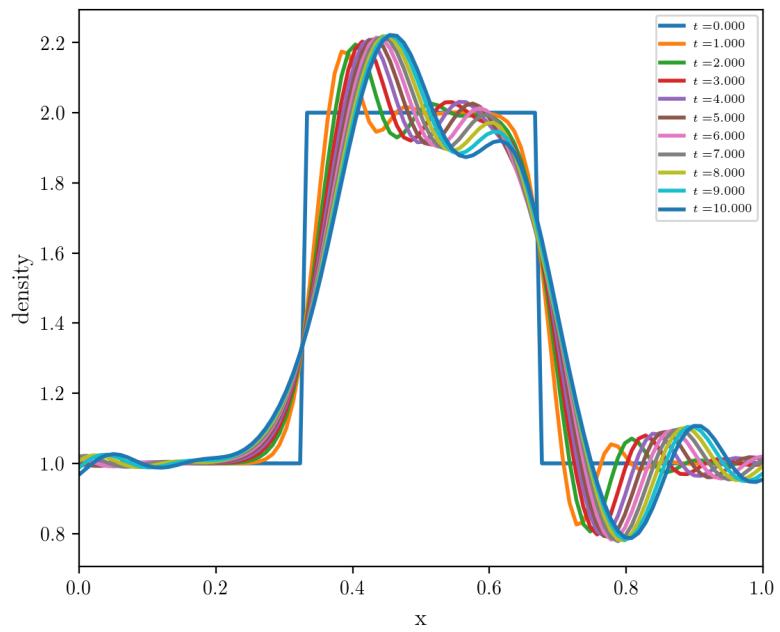
## 1.4 WAF



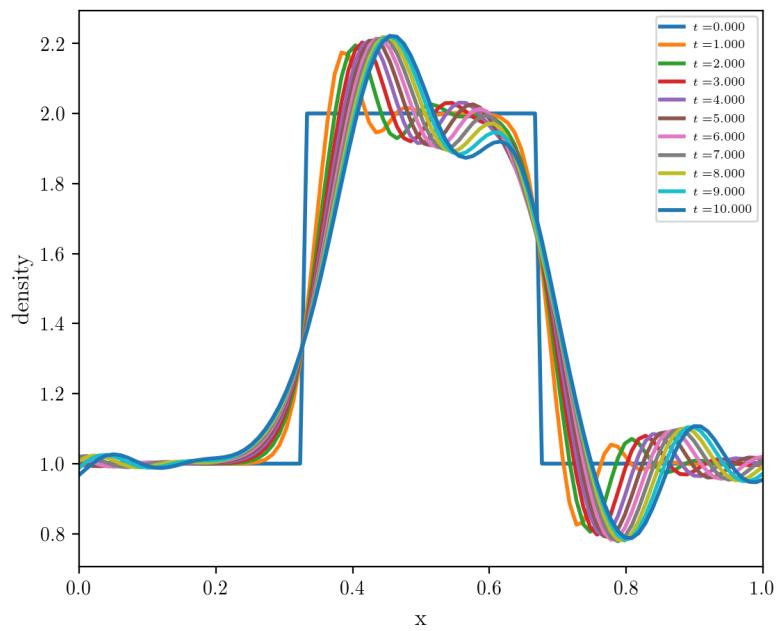
**Figure 41:** Expected result 1D



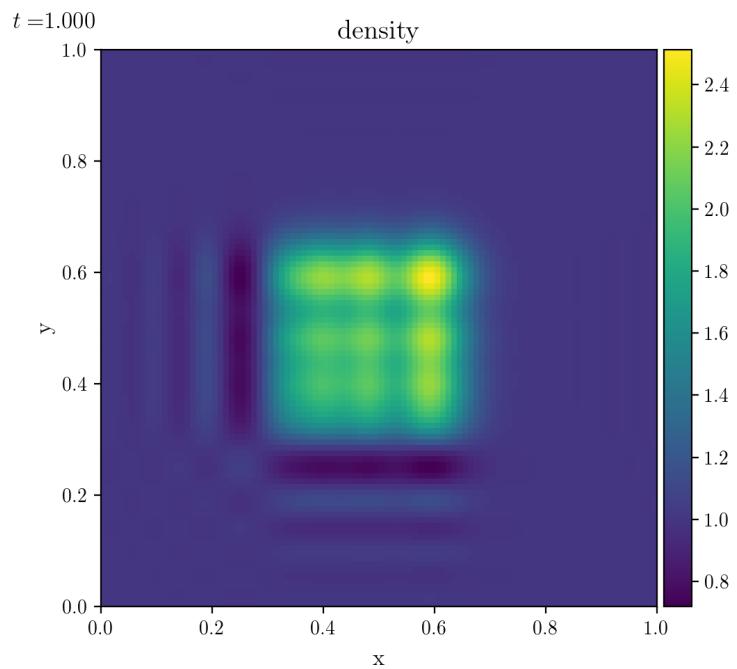
**Figure 42:** Obtained result 1D



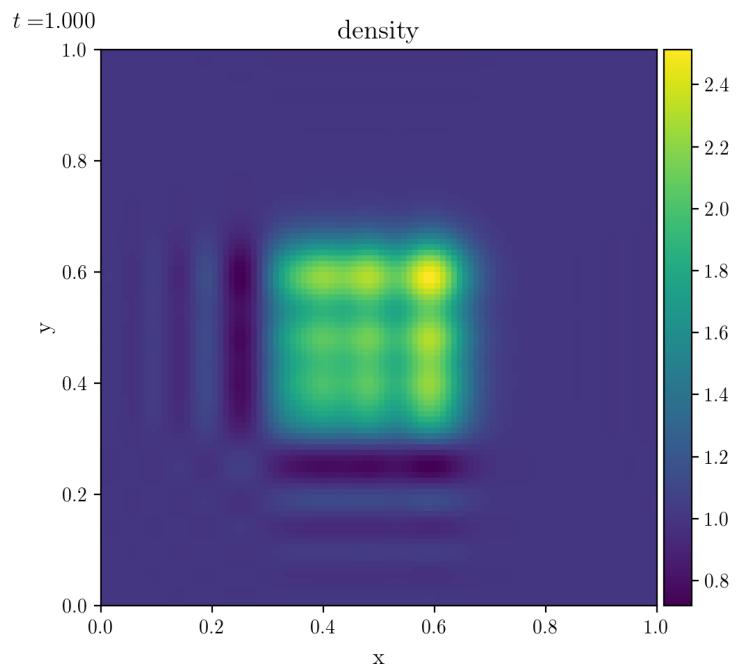
**Figure 43:** Expected result 1D negative velocity



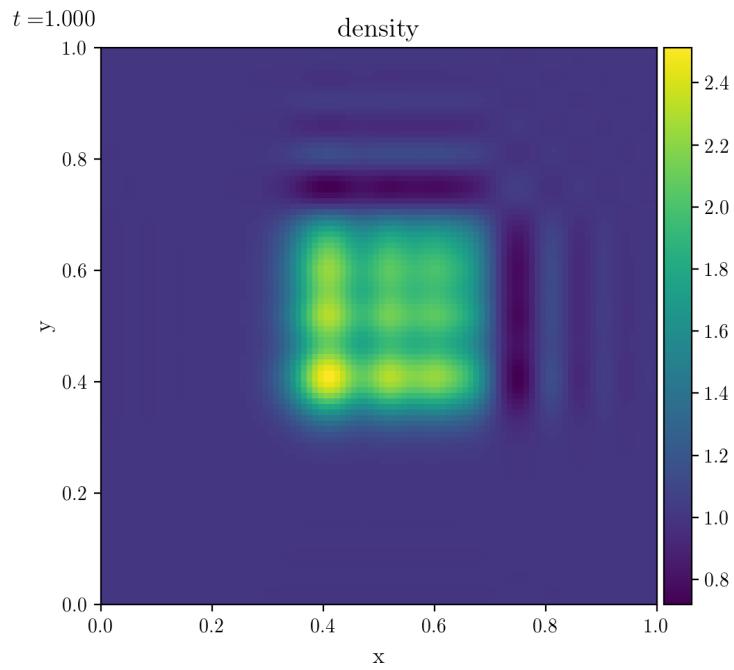
**Figure 44:** Obtained result 1D negative velocity



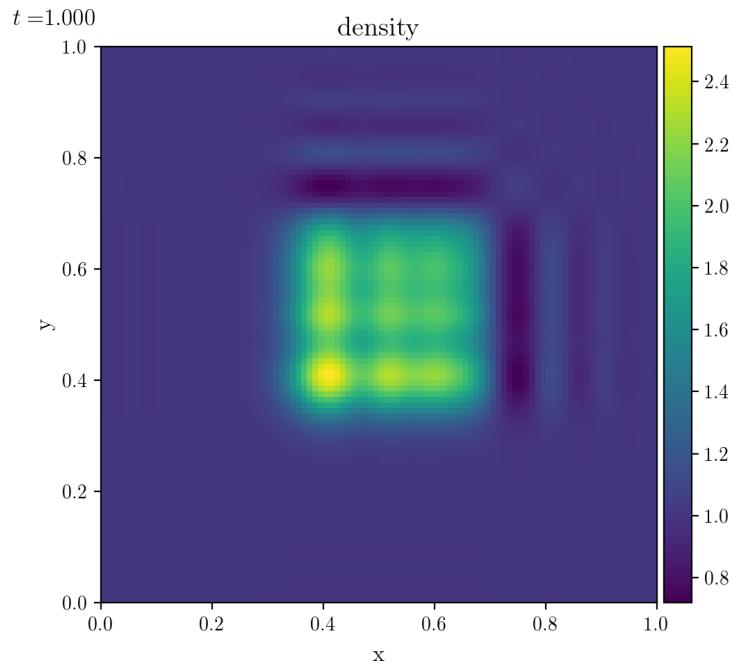
**Figure 45:** Expected result 2D



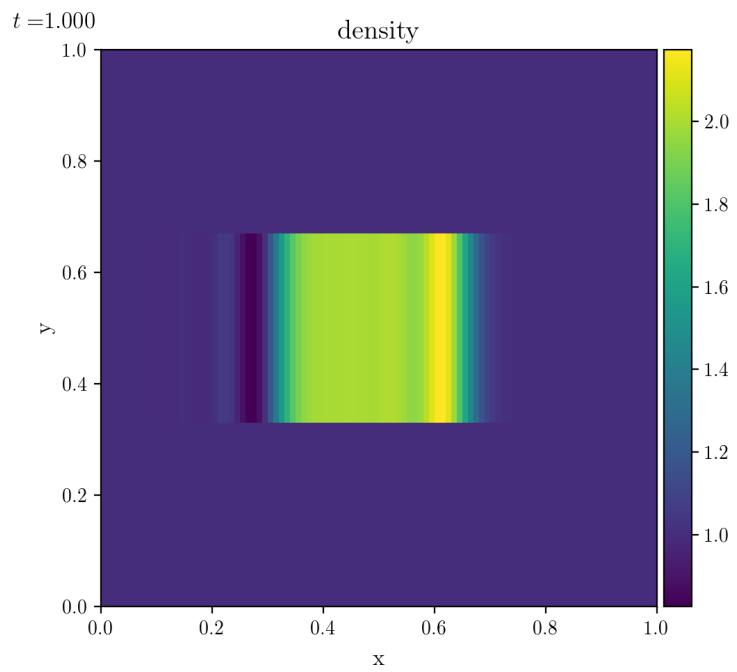
**Figure 46:** Obtained result 2D



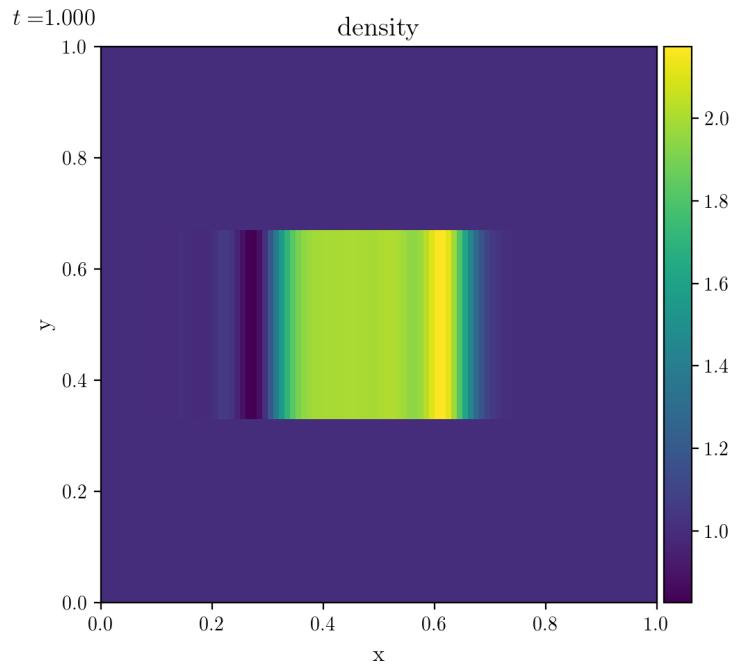
**Figure 47:** Expected result 2D negative velocity



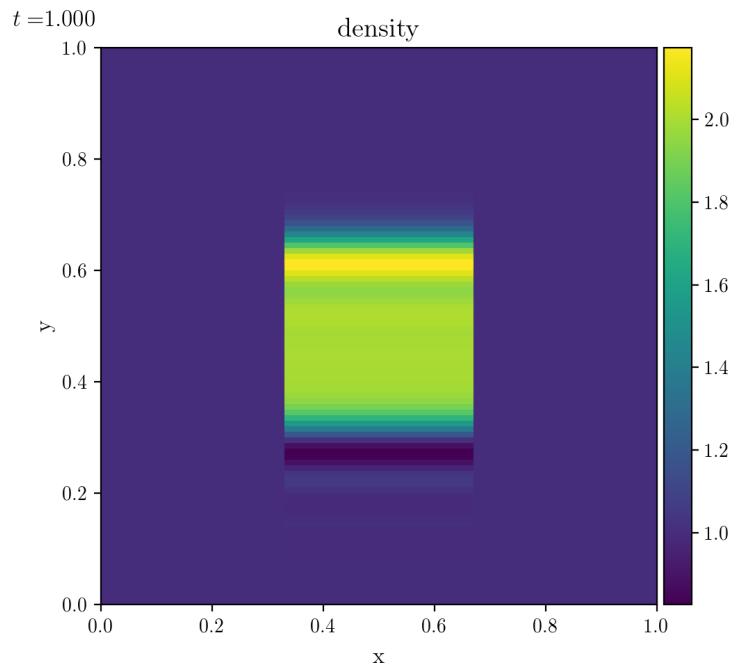
**Figure 48:** Obtained result 2D negative velocity



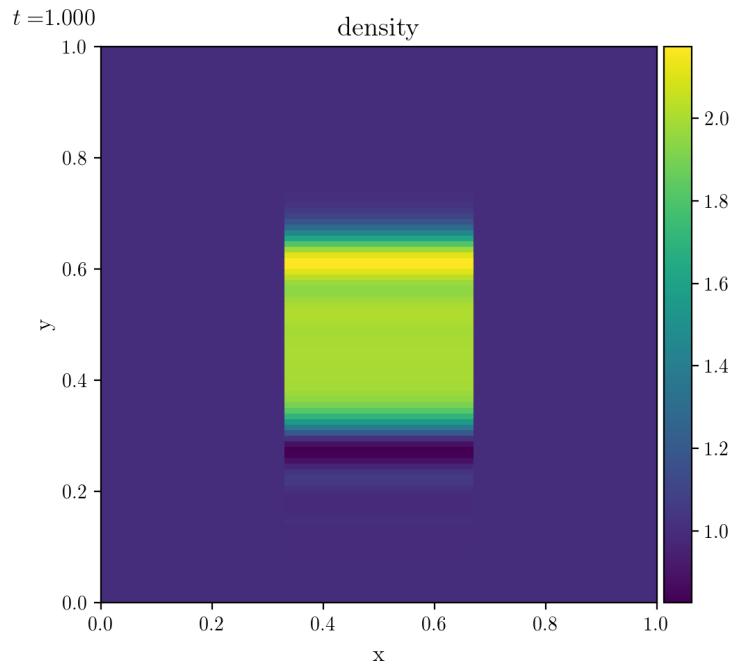
**Figure 49:** Expected result 2D velocity in x direction only



**Figure 50:** Obtained result 2D velocity in x direction only

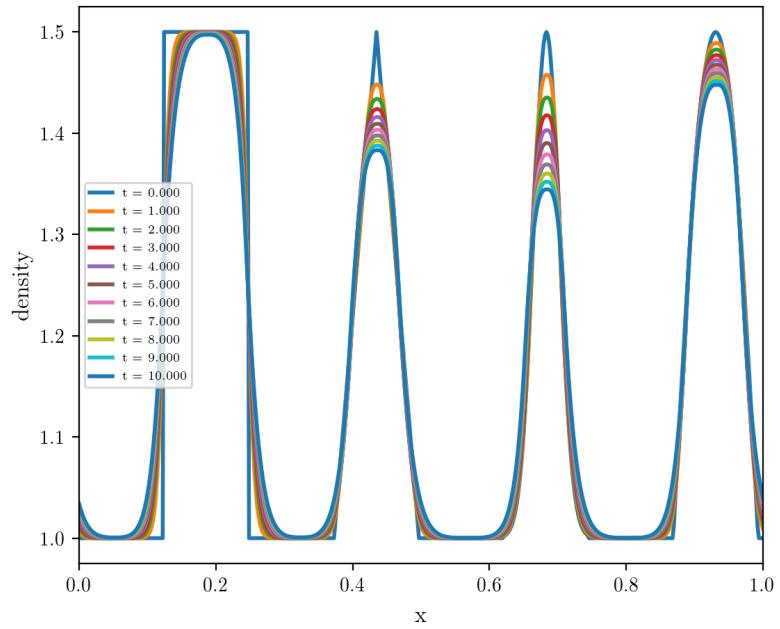


**Figure 51:** Expected result 2D velocity in y direction only

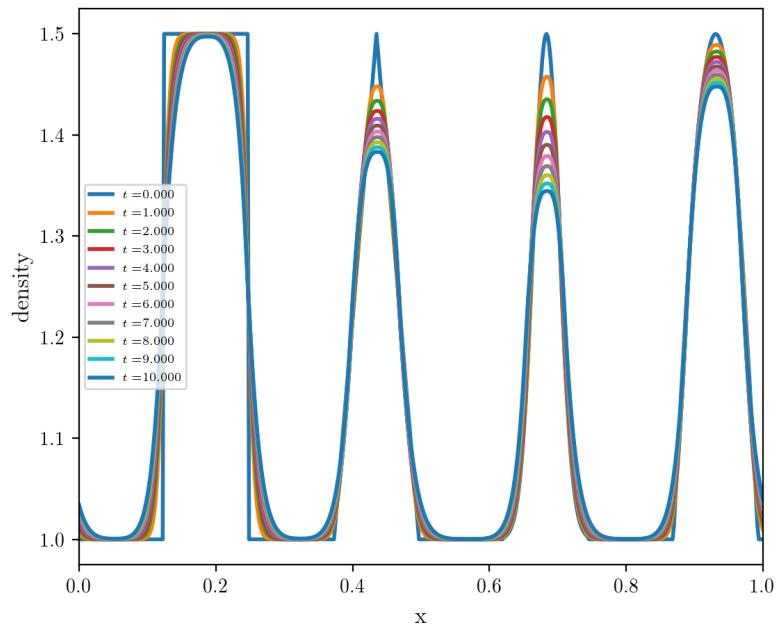


**Figure 52:** Obtained result 2D velocity in y direction only

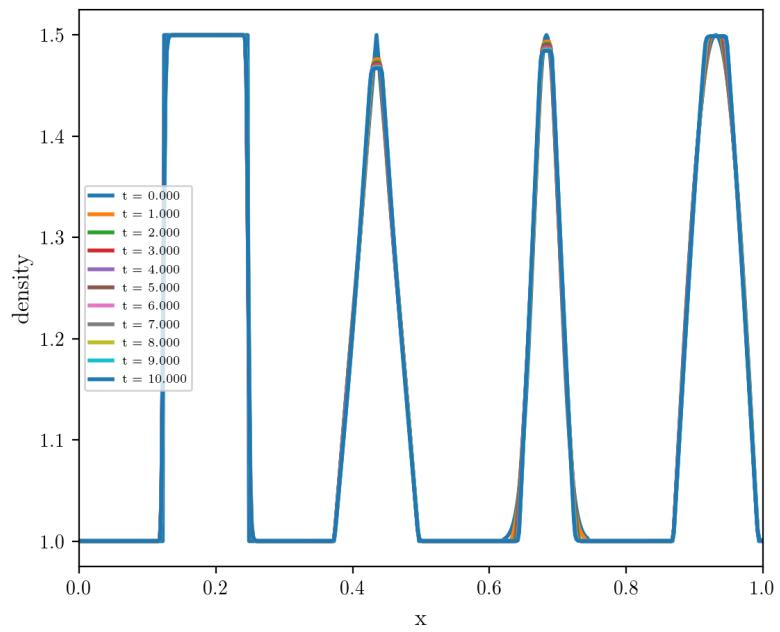
## 1.5 WAF with Slope Limiters



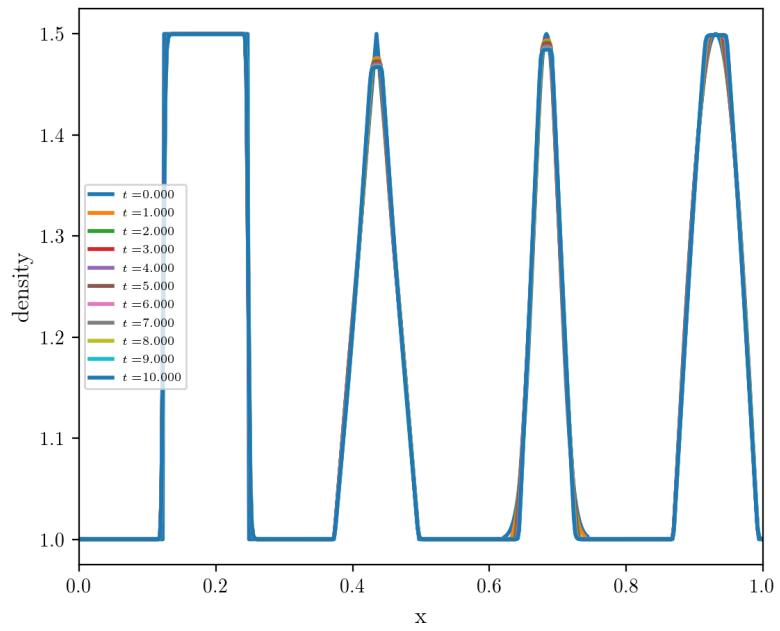
**Figure 53:** Minmod Slope Limiter. Expected result 1D



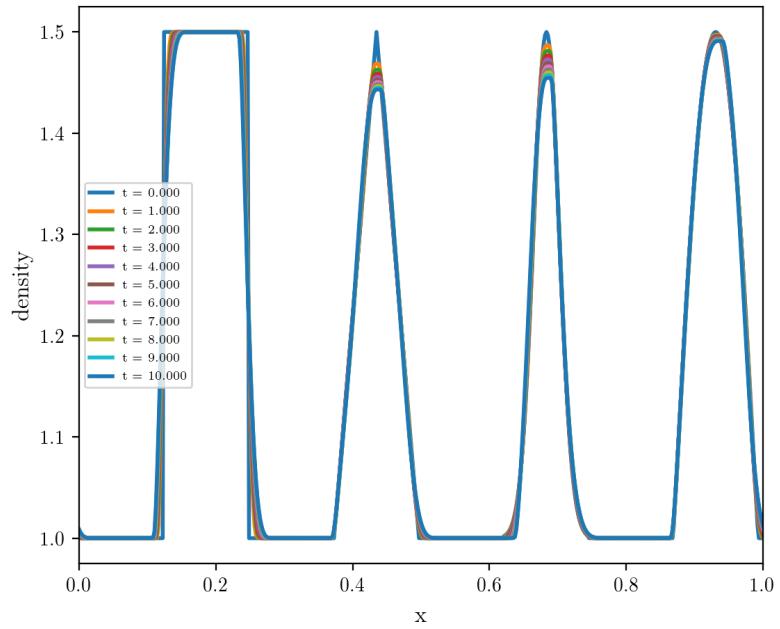
**Figure 54:** Minmod Slope Limiter. Obtained result 1D



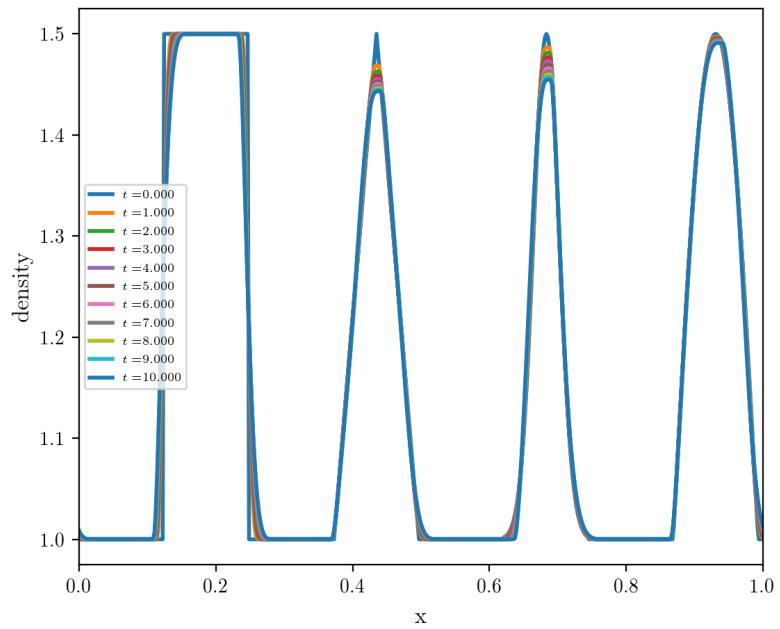
**Figure 55:** Superbee slope limiter. Expected result 1D negative velocity



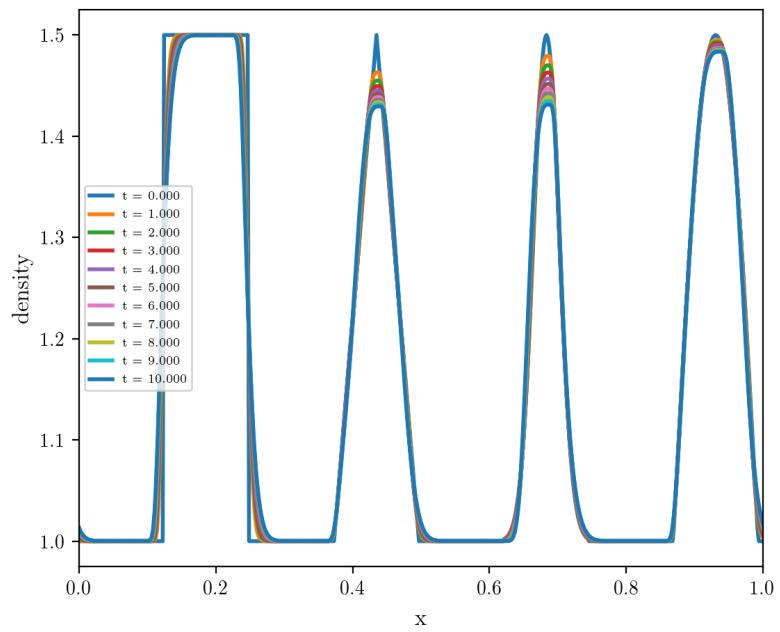
**Figure 56:** Superbee slope limiter. Obtained result 1D negative velocity



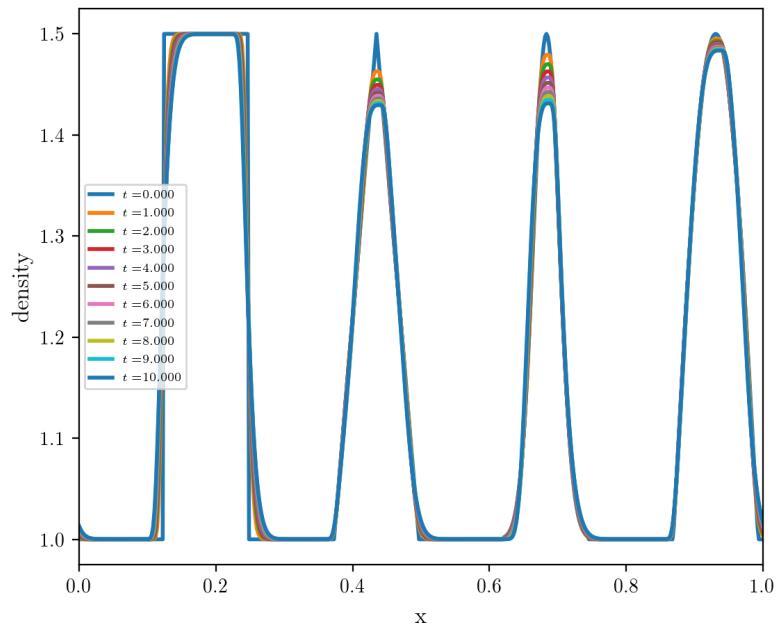
**Figure 57:** Monotonized central limiter. Expected result 1D



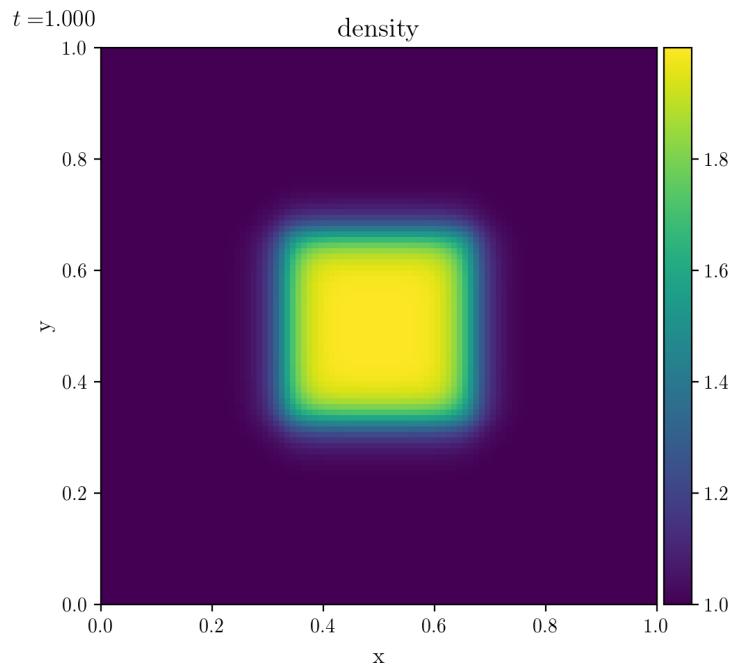
**Figure 58:** Monotonized central limiter. Obtained result 1D



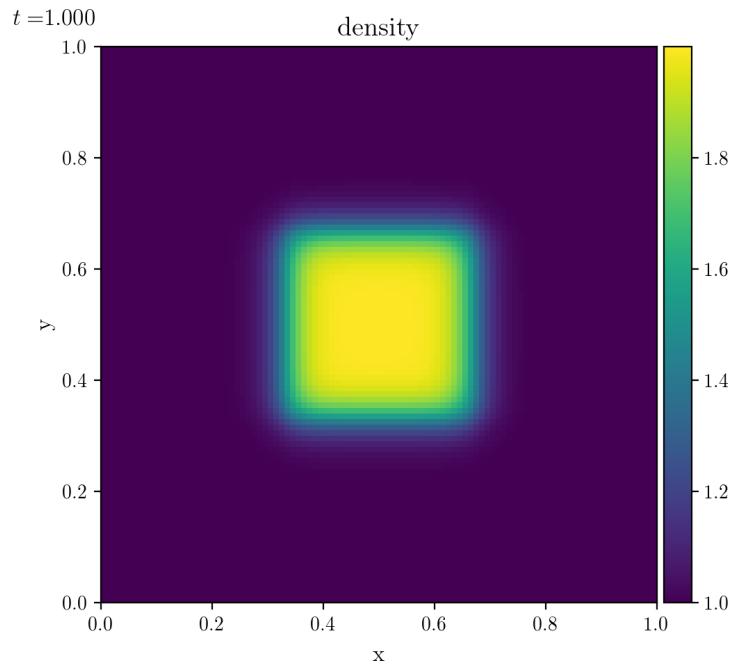
**Figure 59:** Van Leer Limiter. Expected result 1D



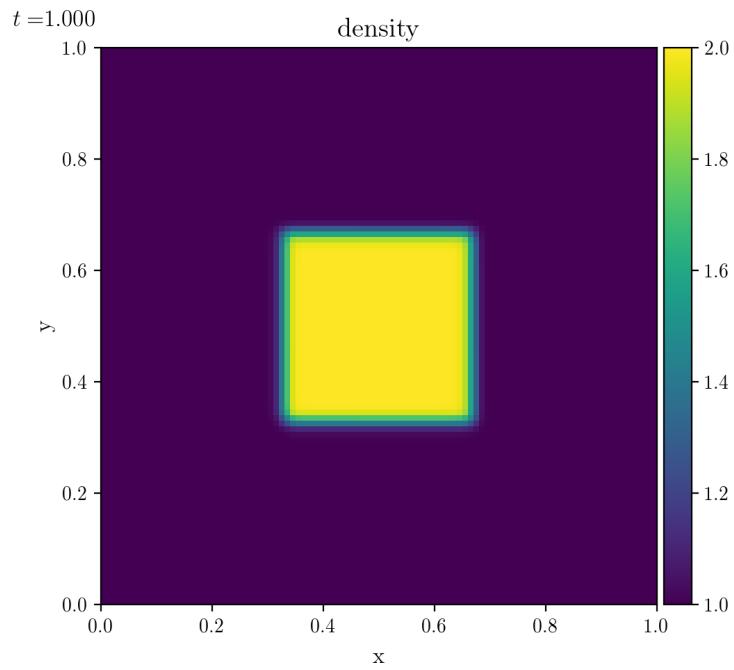
**Figure 60:** Van Leer Limiter. Obtained result 1D



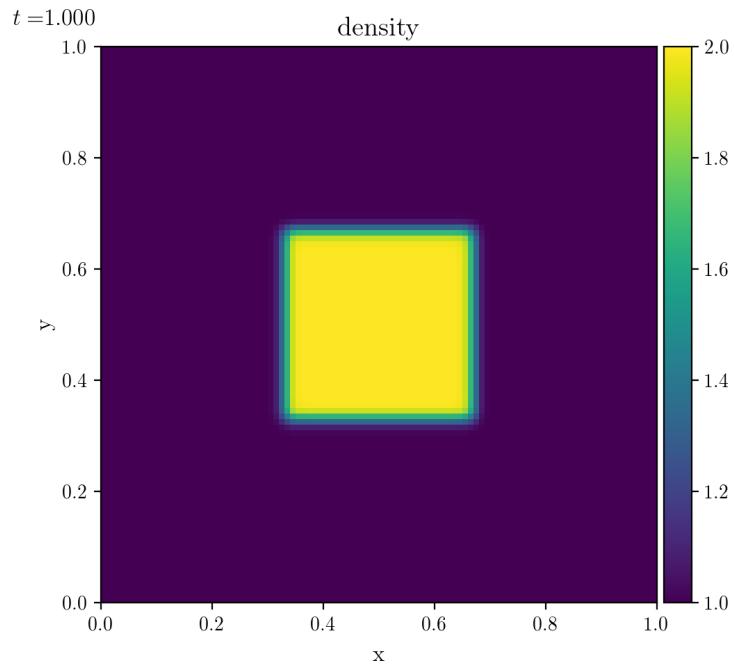
**Figure 61:** Minmod Slope Limiter. Expected result 2D



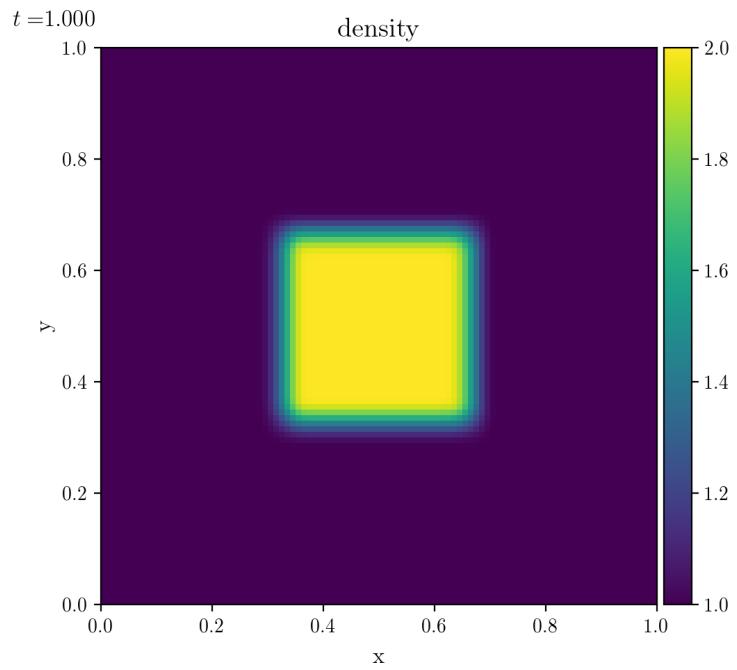
**Figure 62:** Minmod Slope Limiter. Obtained result 2D



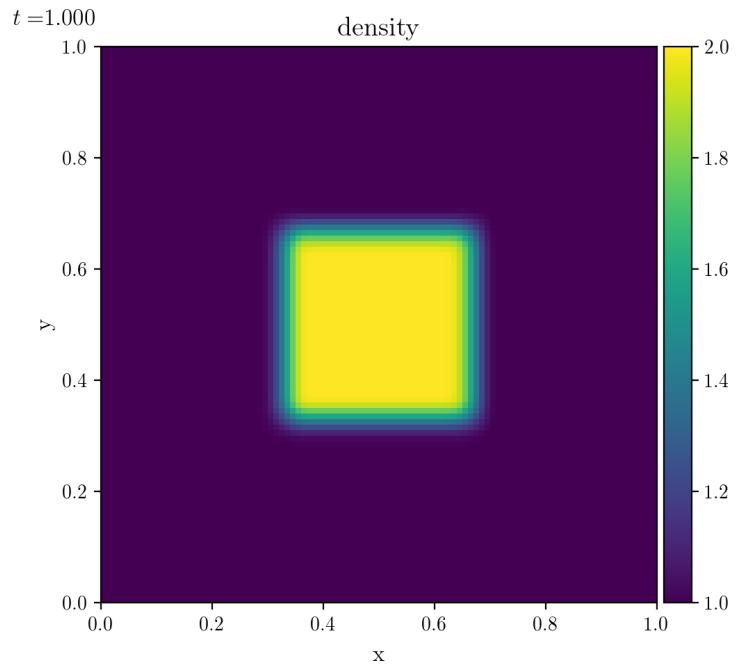
**Figure 63:** Superbee slope limiter. Expected result 2D negative velocity



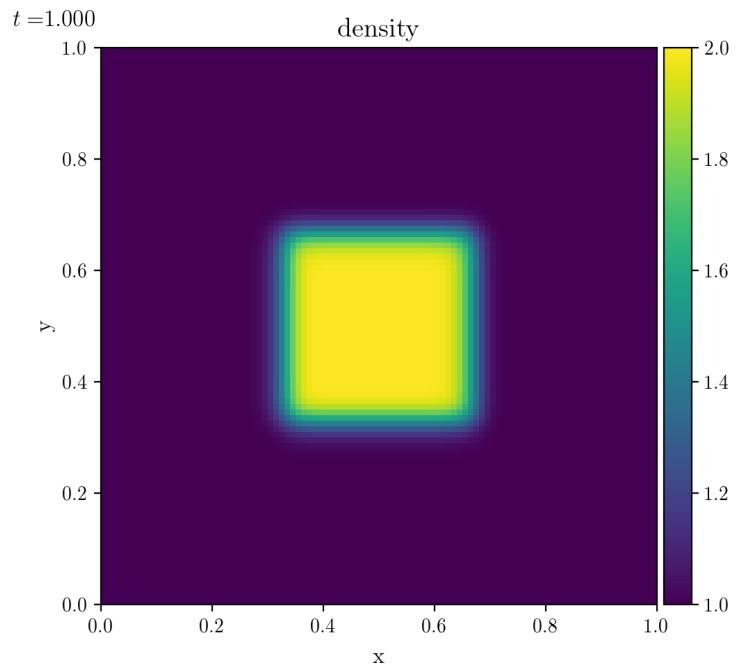
**Figure 64:** Superbee slope limiter. Obtained result 2D negative velocity



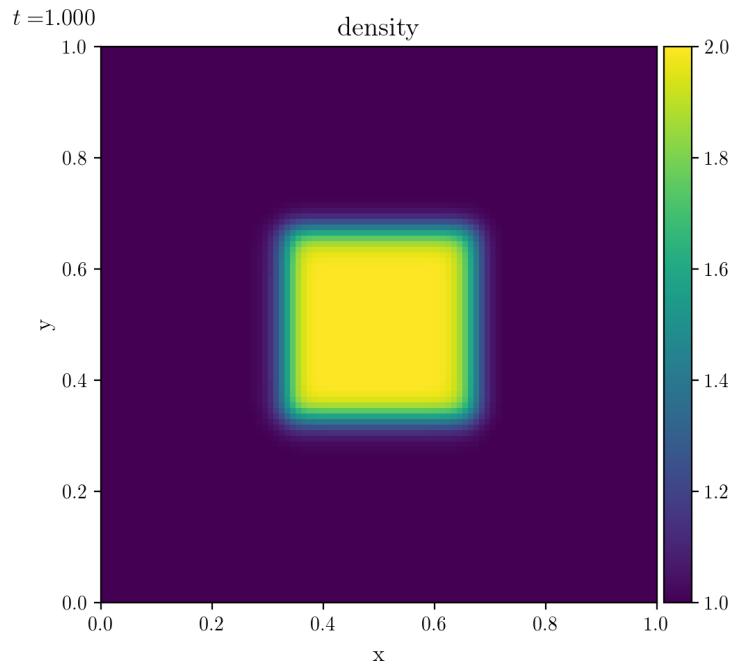
**Figure 65:** Monotonized central limiter. Expected result 2D



**Figure 66:** Monotonized central limiter. Obtained result 2D



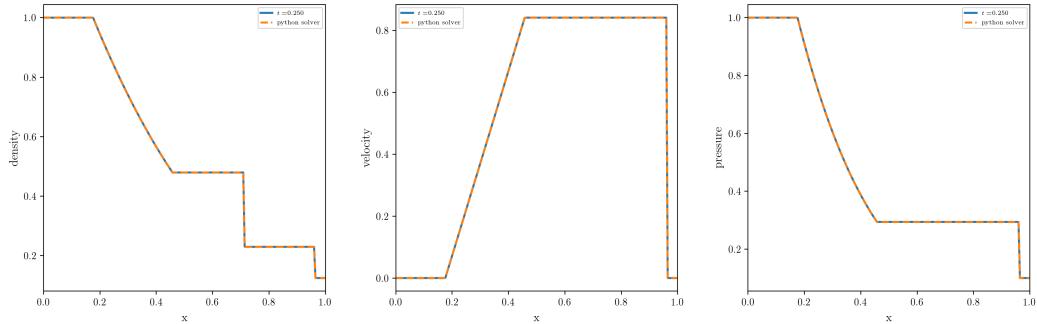
**Figure 67:** Van Leer Limiter. Expected result 2D



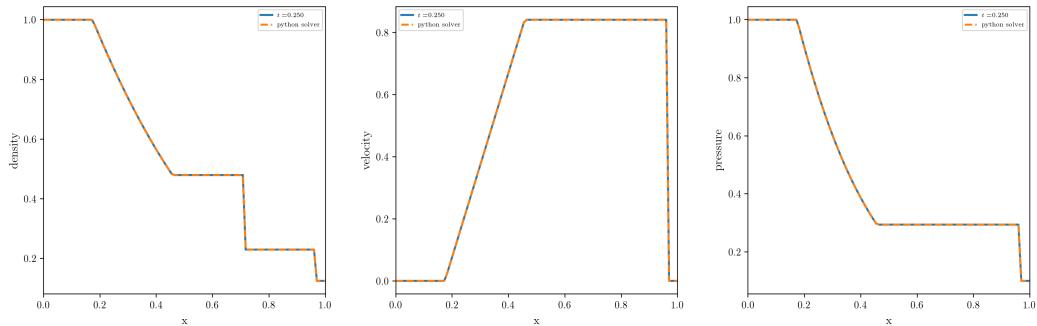
**Figure 68:** Van Leer Limiter. Obtained result 2D

## 2 Riemann Solvers

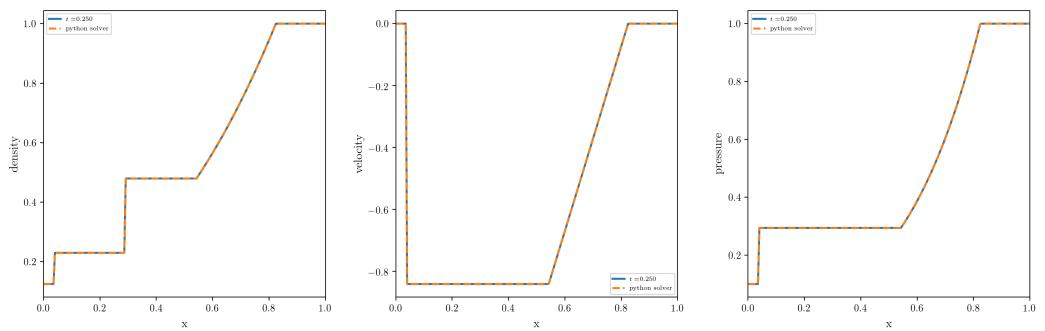
### 2.1 Exact vs Python



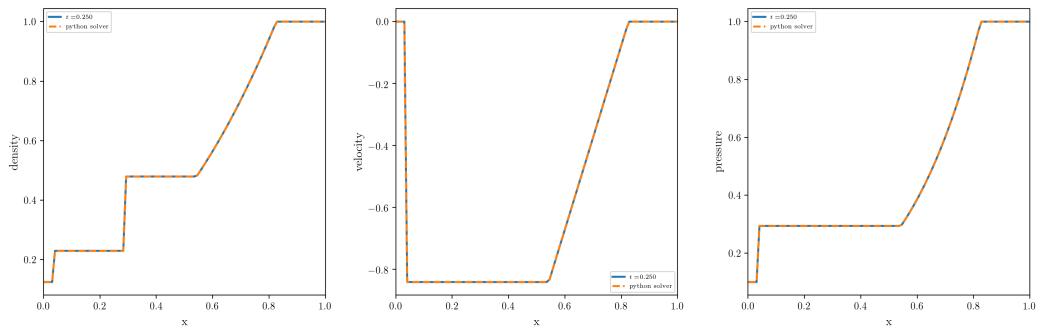
**Figure 69:** Exact solver for (right facing) sod shock. Expected result.



**Figure 70:** Exact solver for (right facing) sod shock. Obtained result.

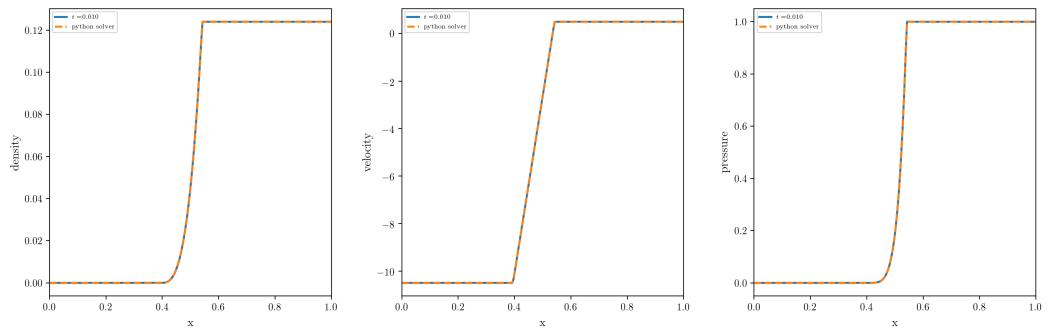


**Figure 71:** Exact solver for (left facing) sod shock. Expected result.

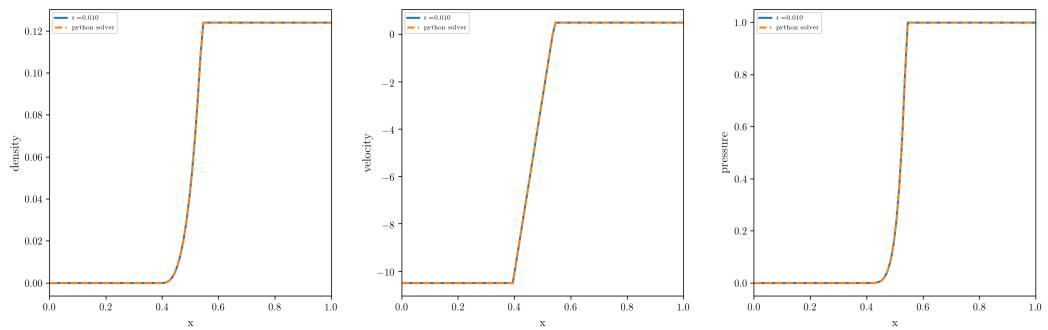


**Figure 72:** Exact solver for (left facing) sod shock. Obtained result.

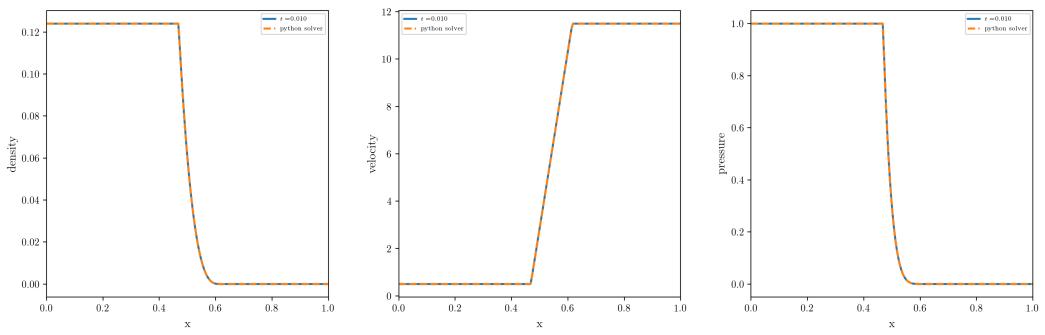
## 2.2 Vacuum



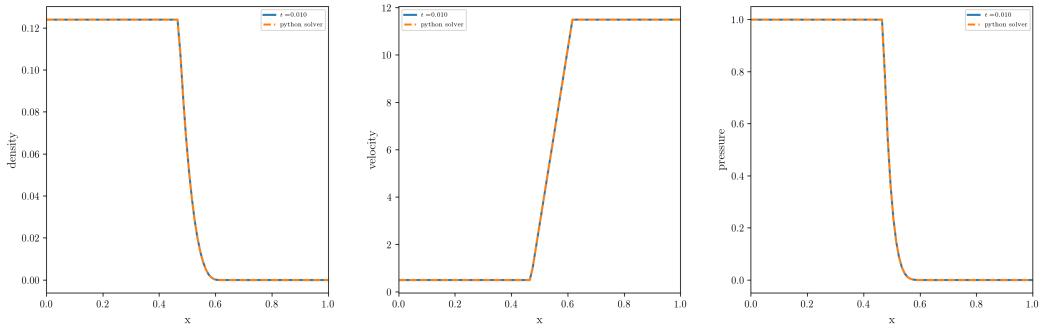
**Figure 73:** Exact solver for left vacuum state. Expected result.



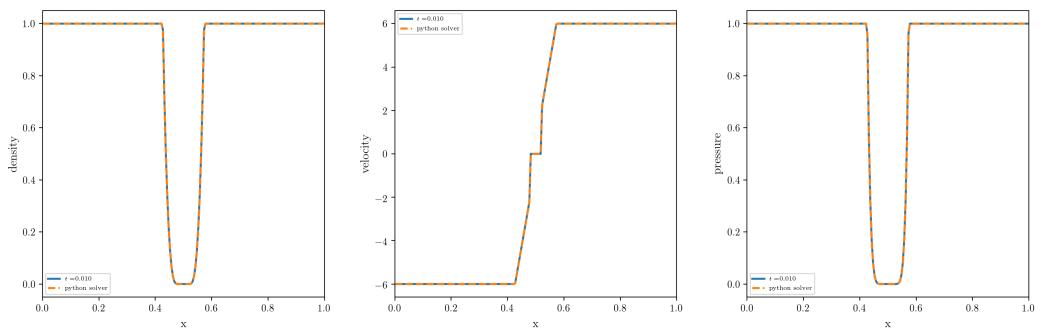
**Figure 74:** Exact solver for left vacuum state. Obtained result.



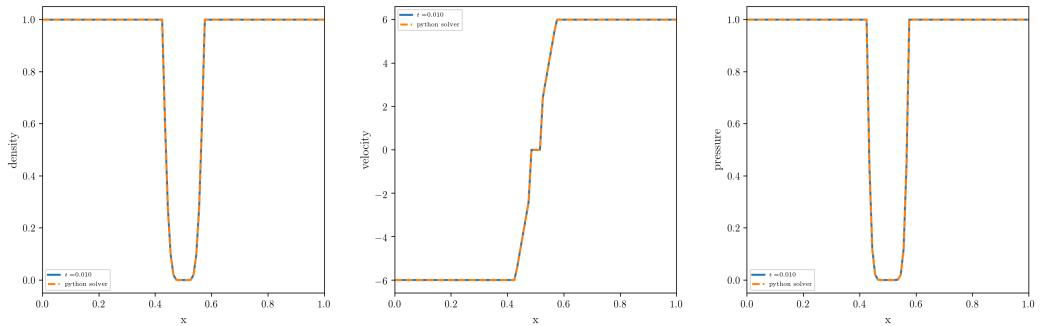
**Figure 75:** Exact solver for left vacuum state. Expected result.



**Figure 76:** Exact solver for left vacuum state. Obtained result.



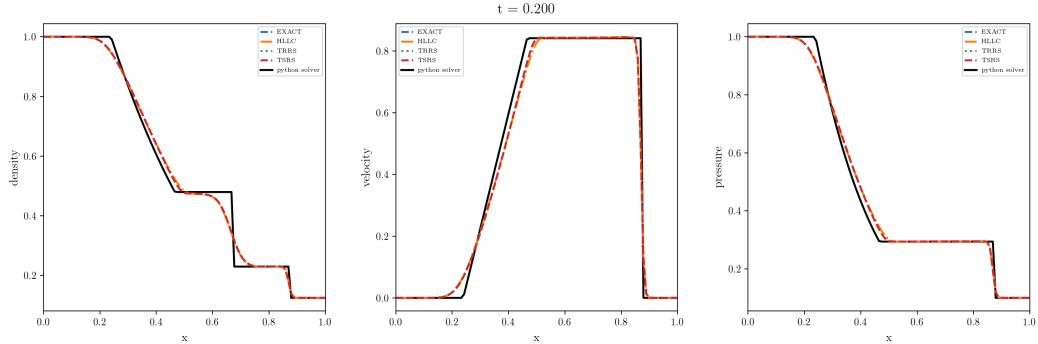
**Figure 77:** Exact solver for vacuum generating conditions. Expected result.



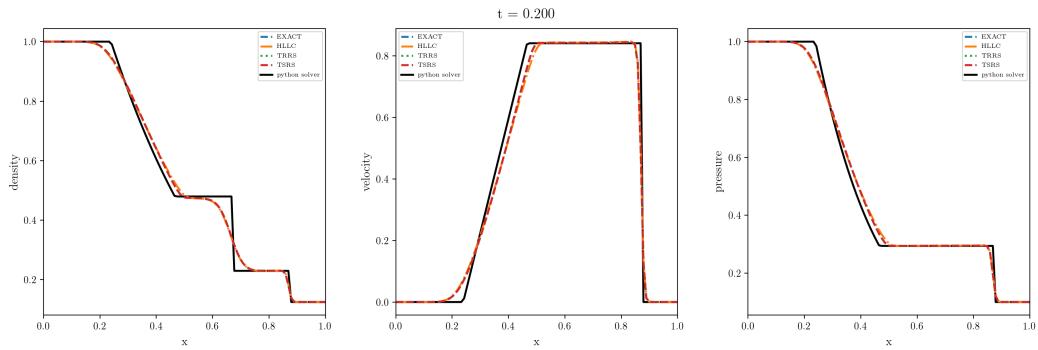
**Figure 78:** Exact solver for vacuum generating conditions. Obtained result.

### 3 Godunov's Method

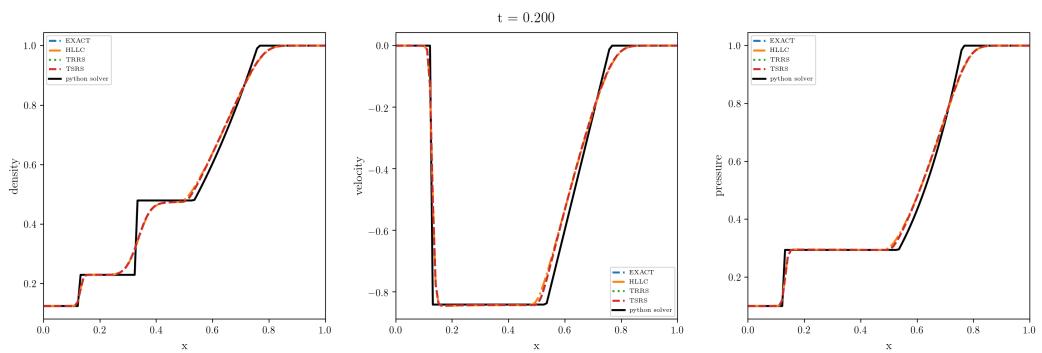
#### 3.1 1D with different Riemann Solvers



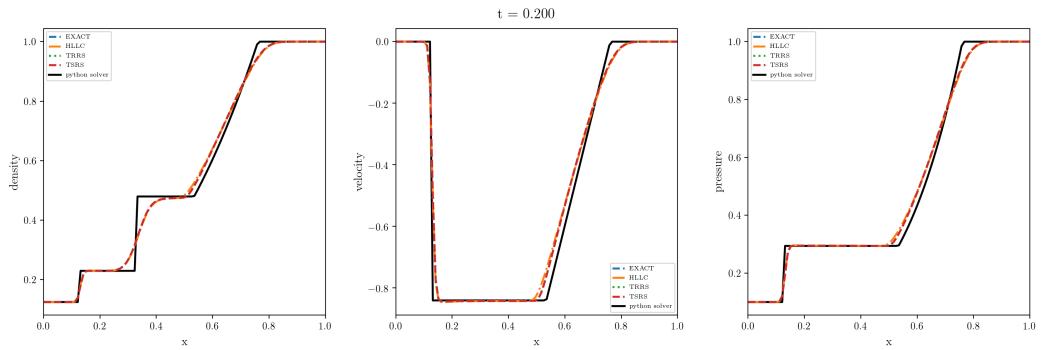
**Figure 79:** Godunov's method for (right facing) sod shock. Expected result.



**Figure 80:** Godunov's method for (right facing) sod shock. Obtained result.

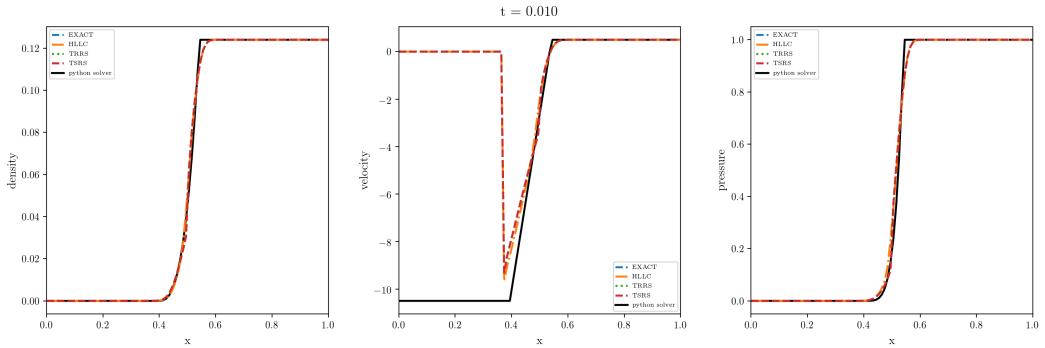


**Figure 81:** Godunov's method for (left facing) sod shock. Expected result.

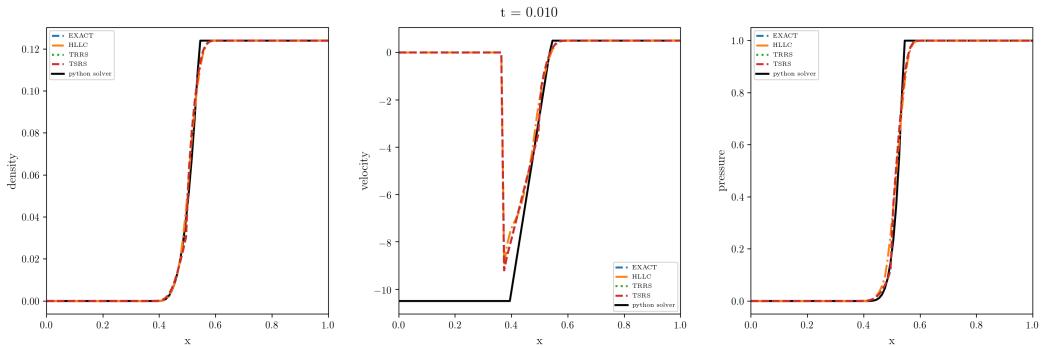


**Figure 82:** Godunov's method for (left facing) sod shock. Obtained result.

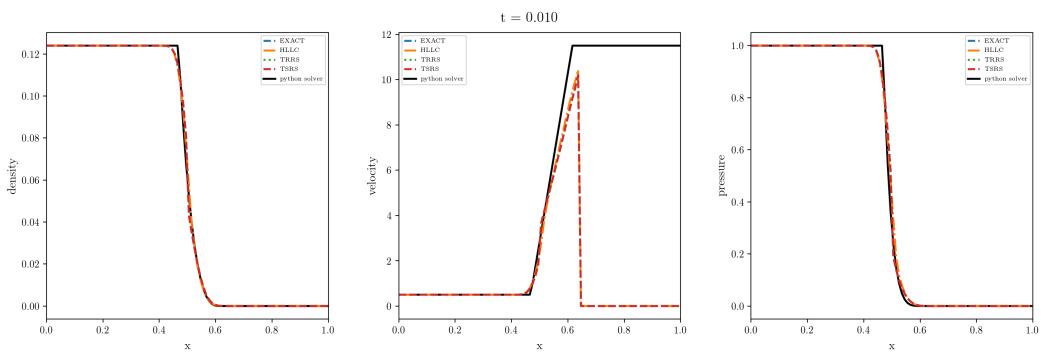
### 3.2 Vacuum in 1D



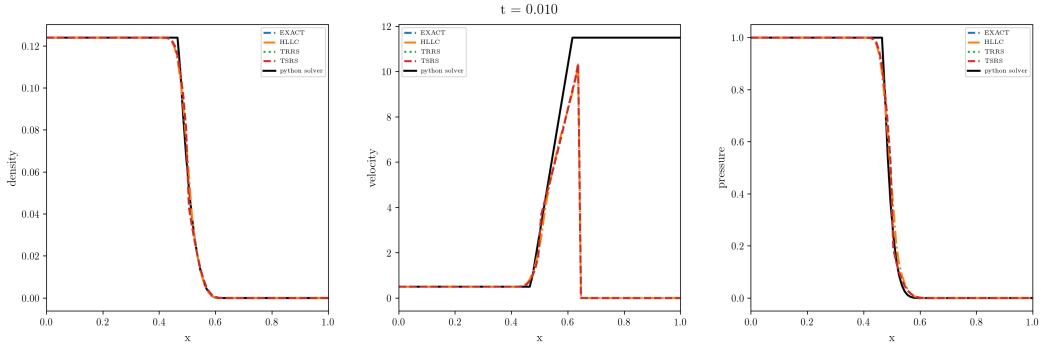
**Figure 83:** Godunov's method for left vacuum state. Expected result.



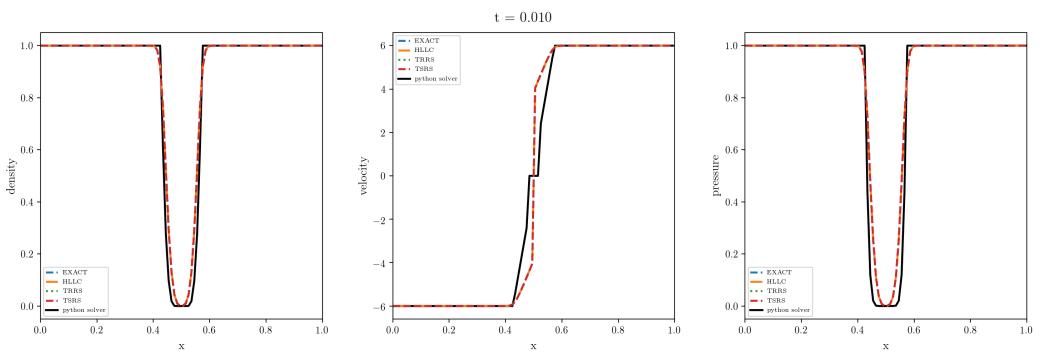
**Figure 84:** Godunov's method for left vacuum state. Obtained result.



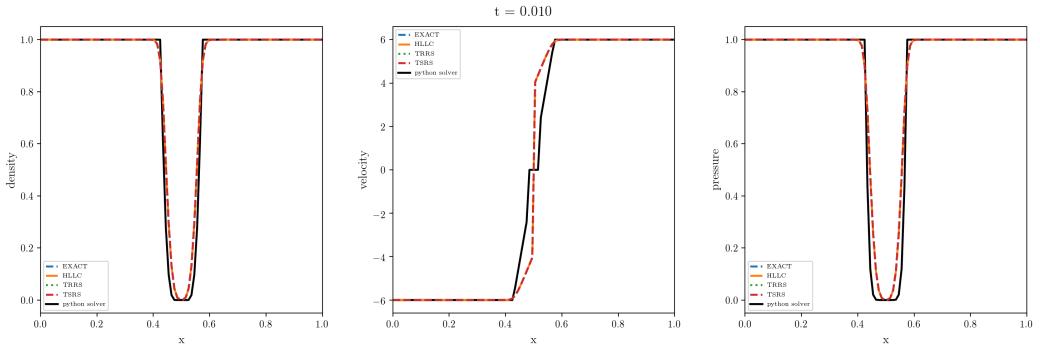
**Figure 85:** Godunov's method for left vacuum state. Expected result.



**Figure 86:** Godunov's method for left vacuum state. Obtained result.

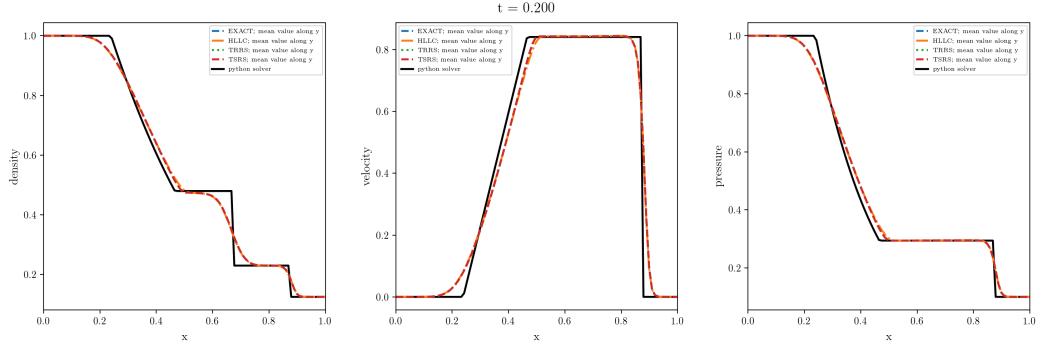


**Figure 87:** Godunov's method for vacuum generating conditions. Expected result.

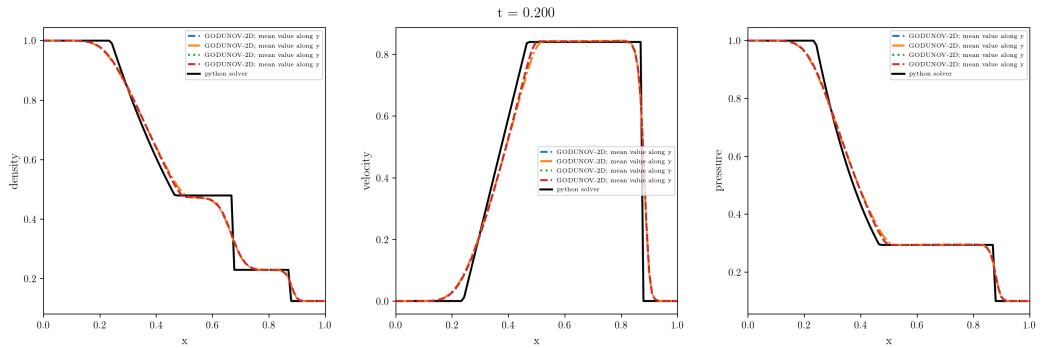


**Figure 88:** Godunov's method for vacuum generating conditions. Obtained result.

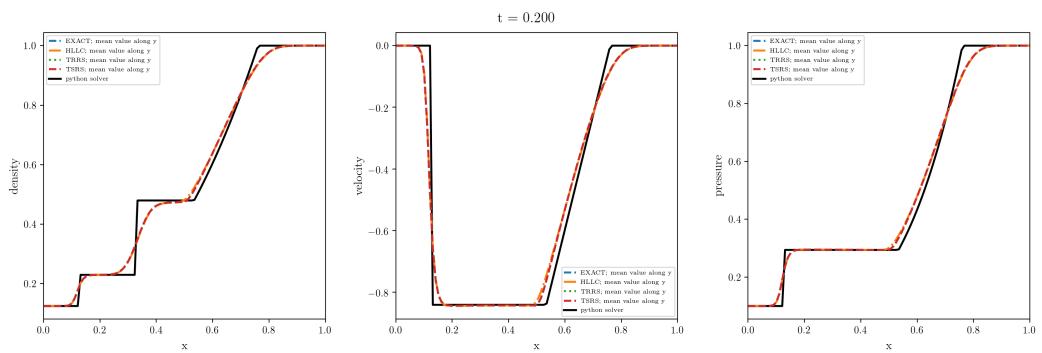
### 3.3 2D with different Riemann Solvers



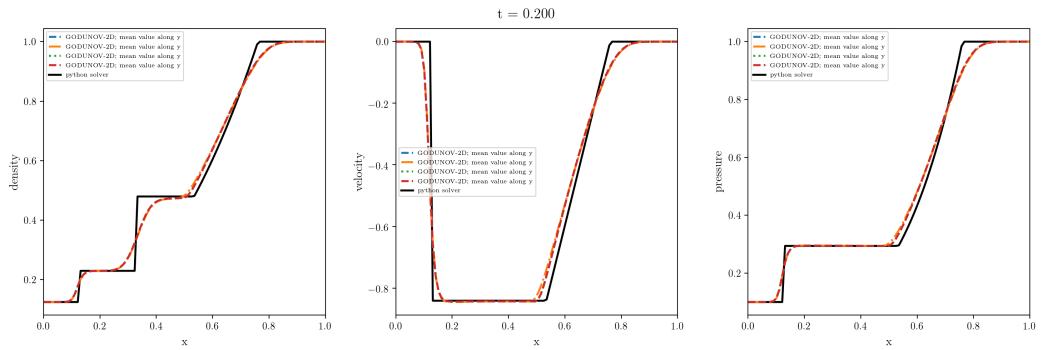
**Figure 89:** Godunov's method for (right facing) sod shock. Expected result.



**Figure 90:** Godunov's method for (right facing) sod shock. Obtained result.

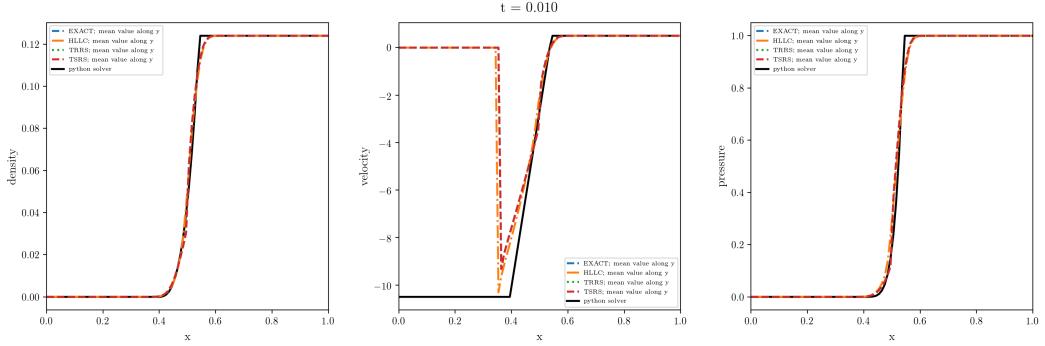


**Figure 91:** Godunov's method for (left facing) sod shock. Expected result.

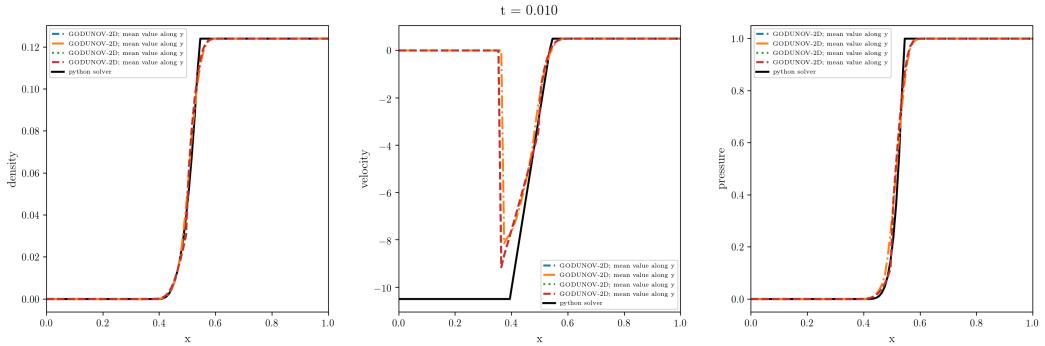


**Figure 92:** Godunov's method for (left facing) sod shock. Obtained result.

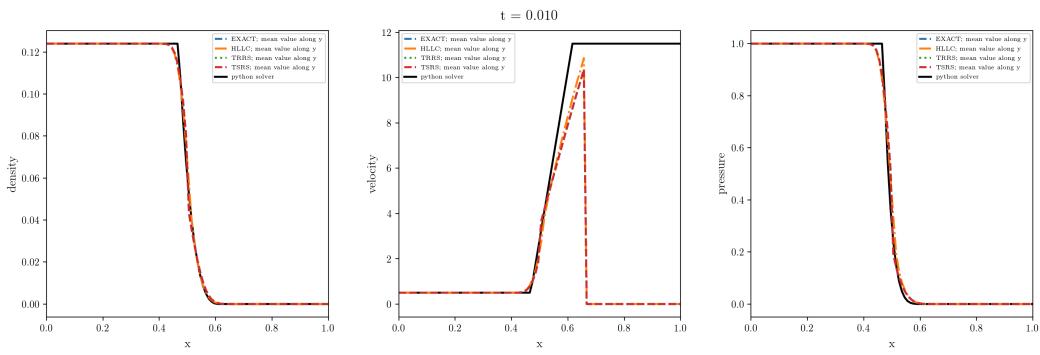
### 3.4 Vacuum in 2D



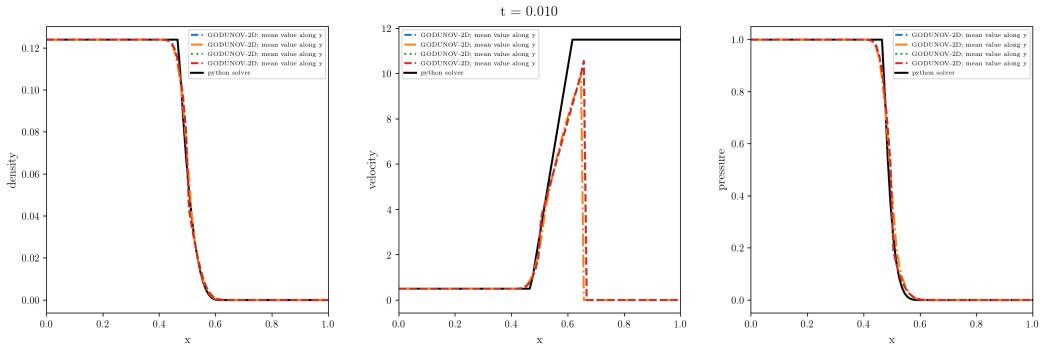
**Figure 93:** Godunov's method for left vacuum state. Expected result.



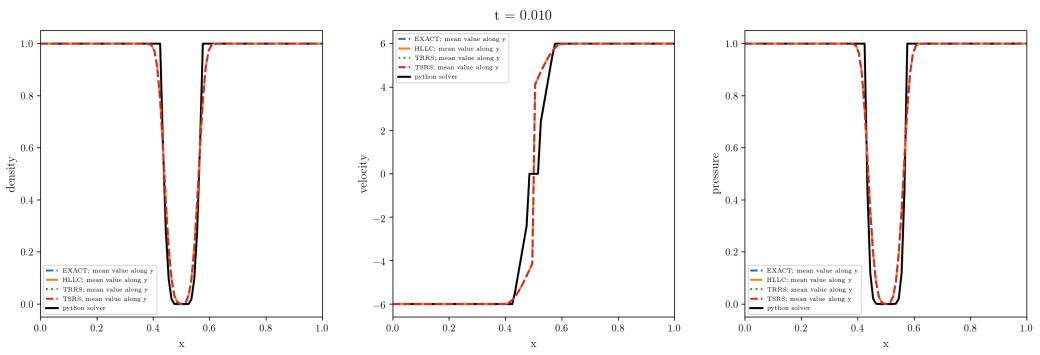
**Figure 94:** Godunov's method for left vacuum state. Obtained result.



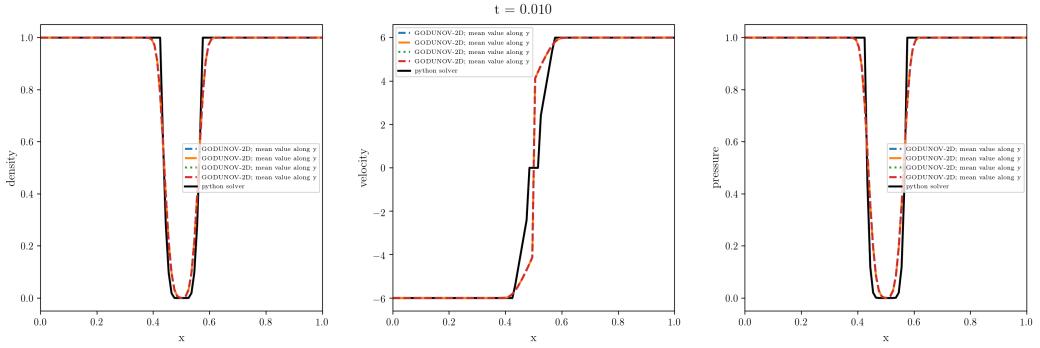
**Figure 95:** Godunov's method for left vacuum state. Expected result.



**Figure 96:** Godunov's method for left vacuum state. Obtained result.

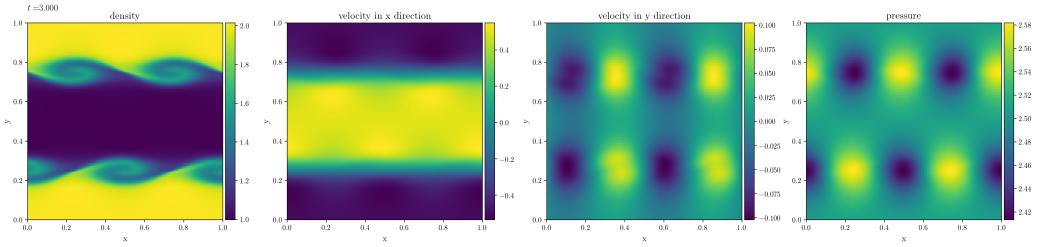


**Figure 97:** Godunov's method for vacuum generating conditions. Expected result.

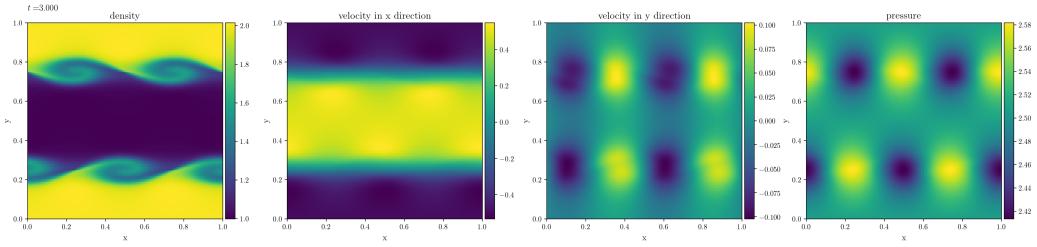


**Figure 98:** Godunov's method for vacuum generating conditions. Obtained result.

### 3.5 Others in 2D



**Figure 99:** Godunov's method for Kelvin Helmholtz instability. Expected result.

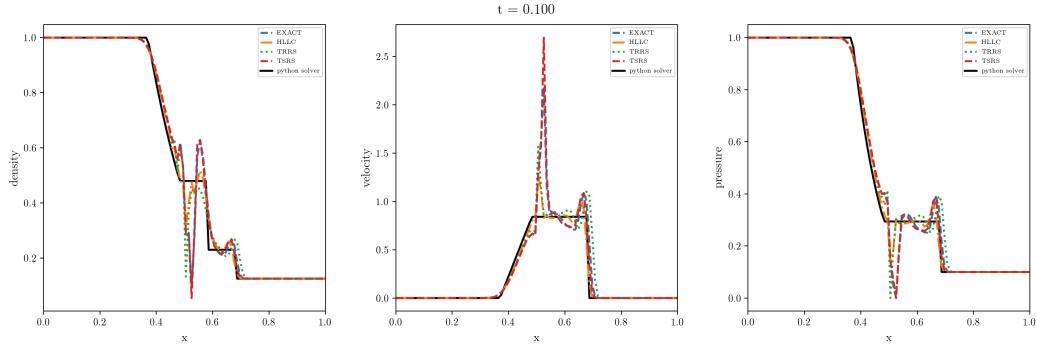


**Figure 100:** Godunov's method for Kelvin Helmholtz instability. Obtained result.

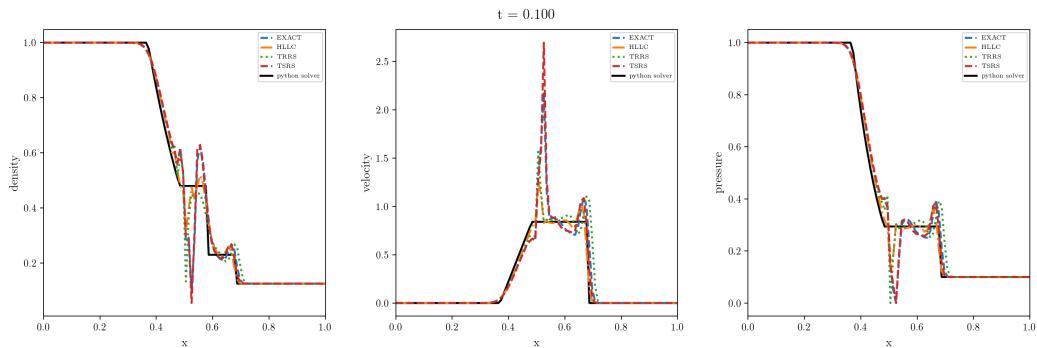
## 4 WAF Method

### 4.1 1D with different Limiters

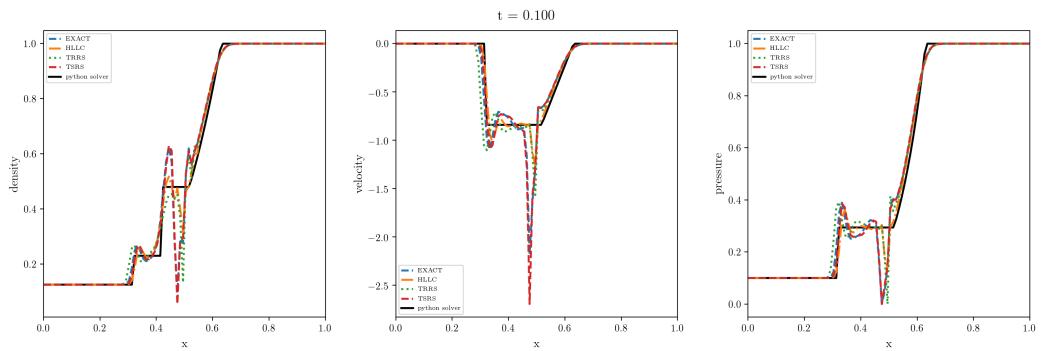
#### 4.1.1 Without limiter



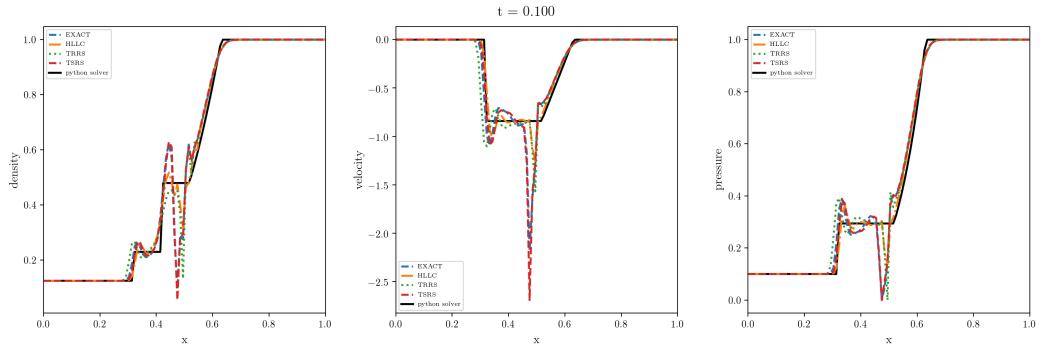
**Figure 101:** WAF method for (right facing) sod shock, no flux limiter. Expected result.



**Figure 102:** WAF method for (right facing) sod shock, no flux limiter. Obtained result.

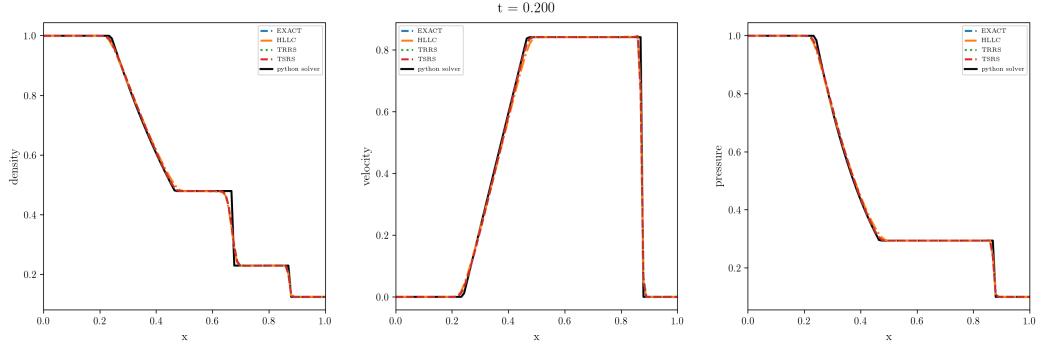


**Figure 103:** WAF method for (left facing) sod shock, no flux limiter. Expected result.

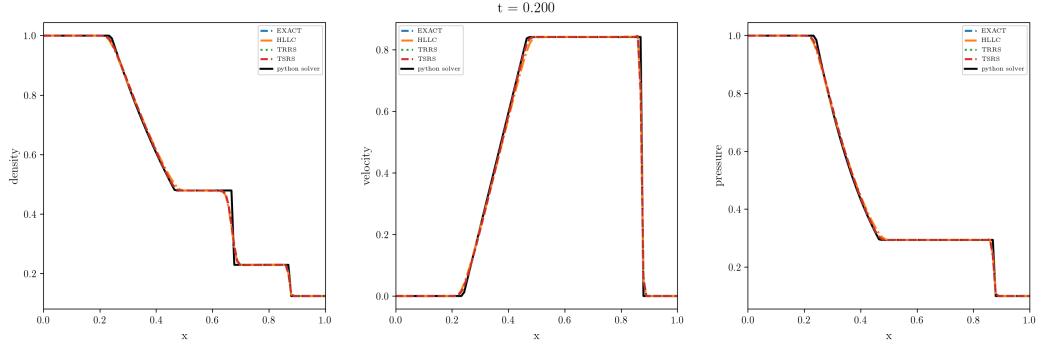


**Figure 104:** WAF method for (left facing) sod shock, no flux limiter. Obtained result.

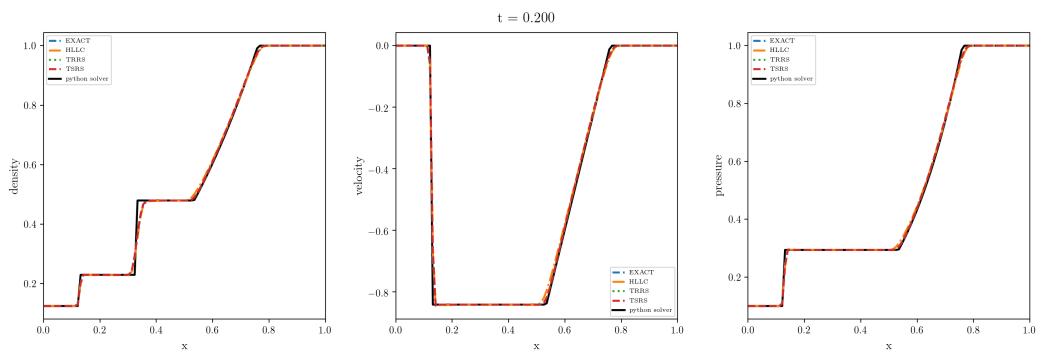
#### 4.1.2 MC limiter



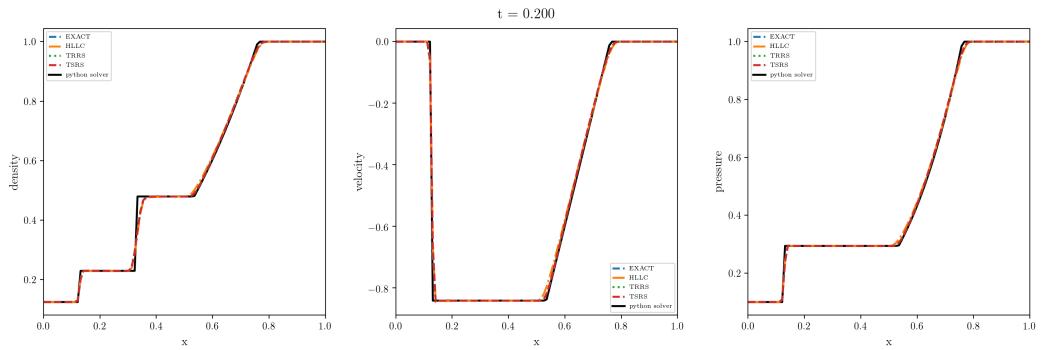
**Figure 105:** WAF method for (right facing) sod shock, MC flux limiter. Expected result.



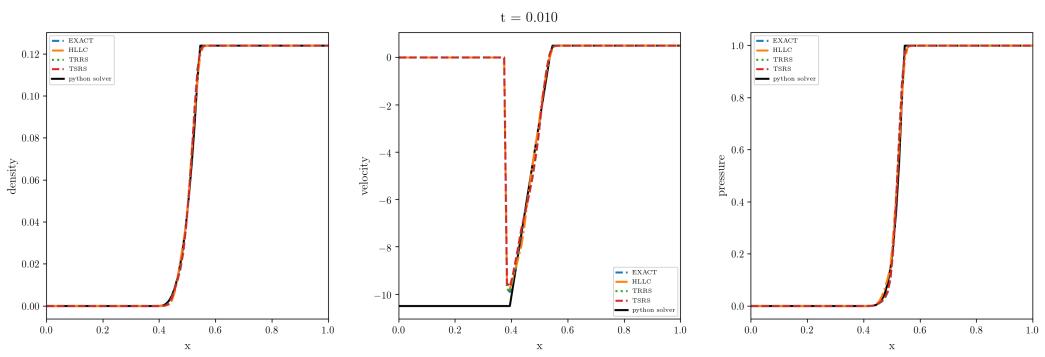
**Figure 106:** WAF method for (right facing) sod shock, MC flux limiter. Obtained result.



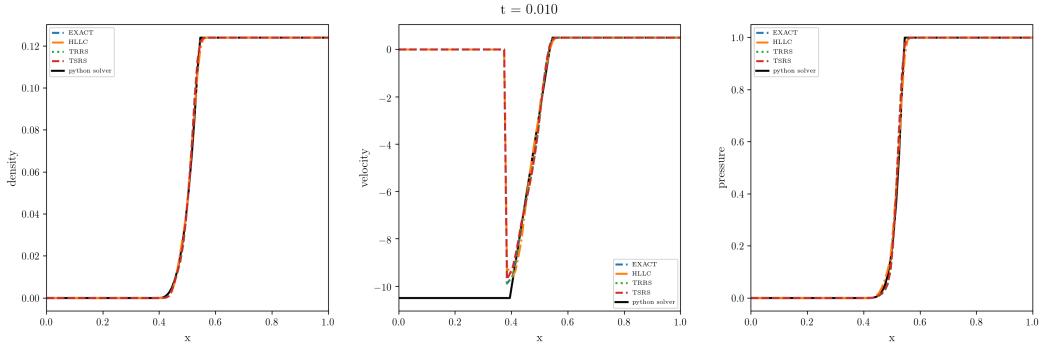
**Figure 107:** WAF method for (left facing) sod shock, MC flux limiter. Expected result.



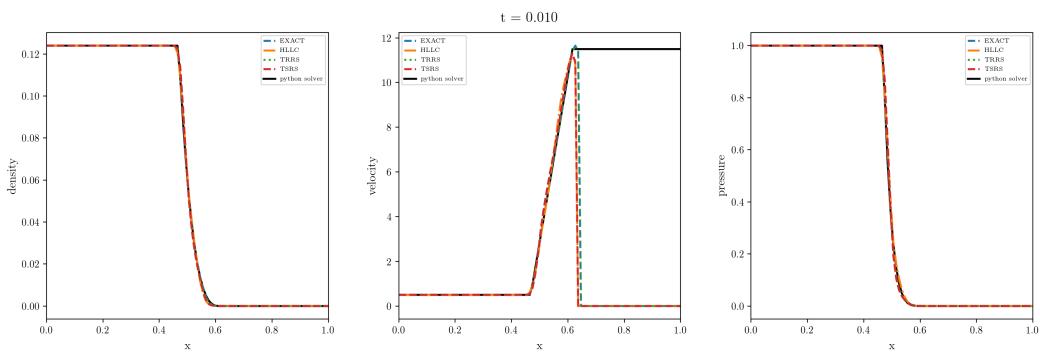
**Figure 108:** WAF method for (left facing) sod shock, MC flux limiter. Obtained result.



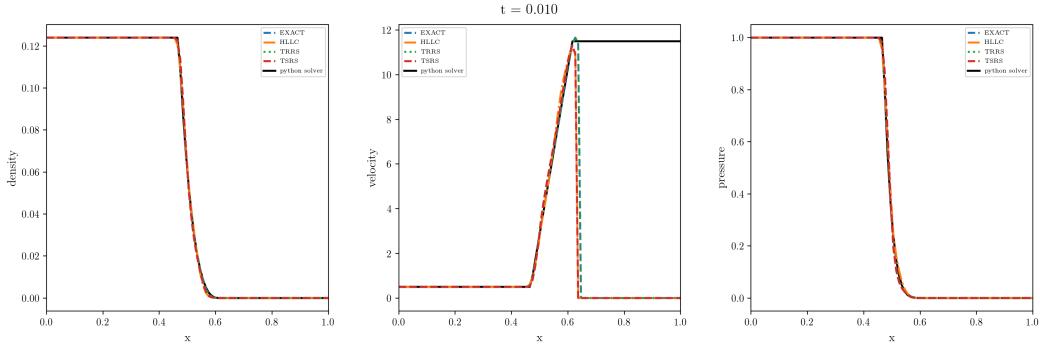
**Figure 109:** WAF method for left vacuum state, MC flux limiter. Expected result.



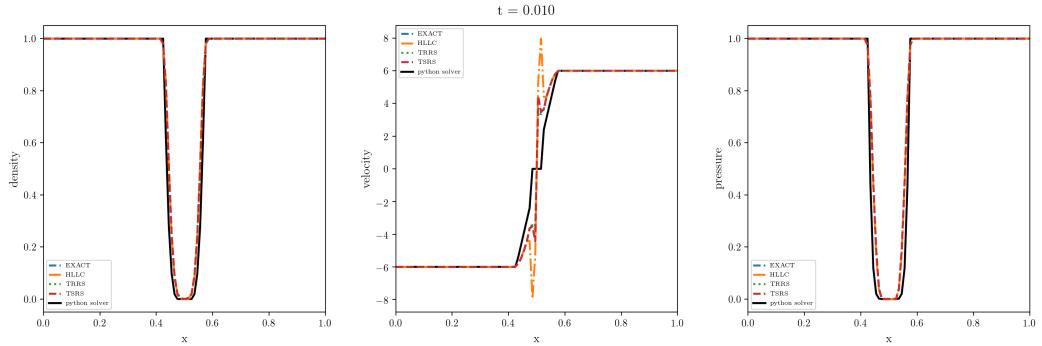
**Figure 110:** WAF method for left vacuum state, MC flux limiter. Obtained result.



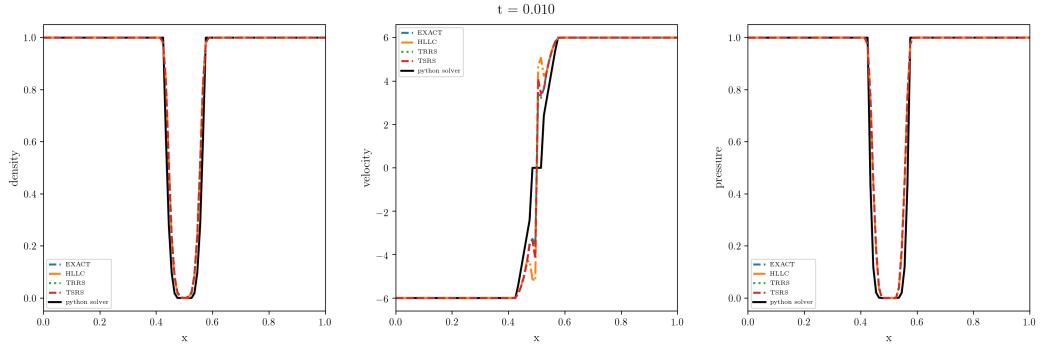
**Figure 111:** WAF method for left vacuum state, MC flux limiter. Expected result.



**Figure 112:** WAF method for left vacuum state, MC flux limiter. Obtained result.

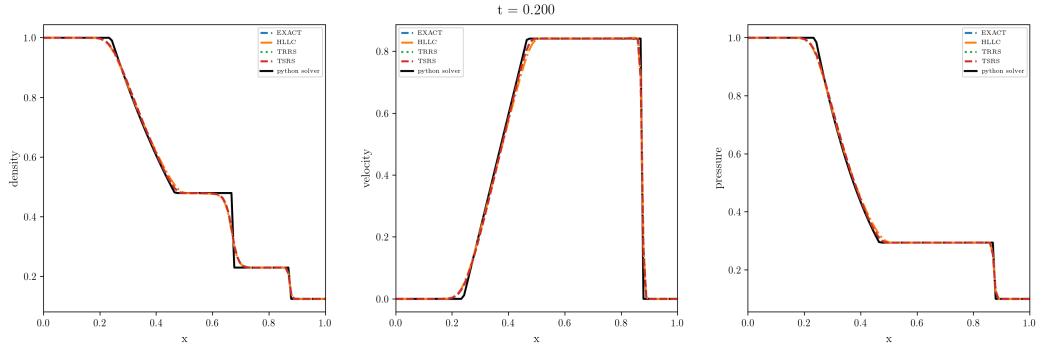


**Figure 113:** WAF method for vacuum generating conditions, MC flux limiter. Expected result.

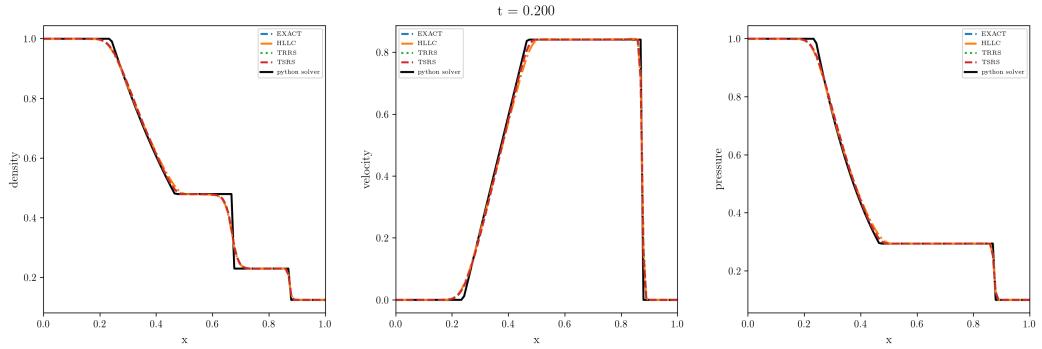


**Figure 114:** WAF method for vacuum generating conditions, MC flux limiter. Obtained result.

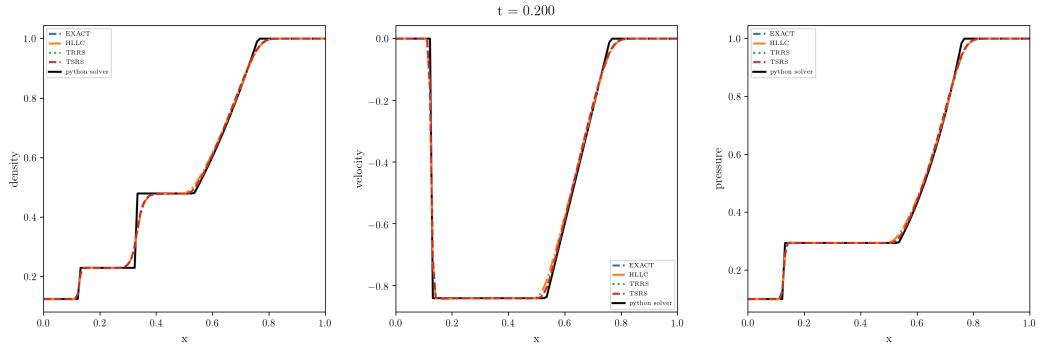
#### 4.1.3 MINMOD limiter



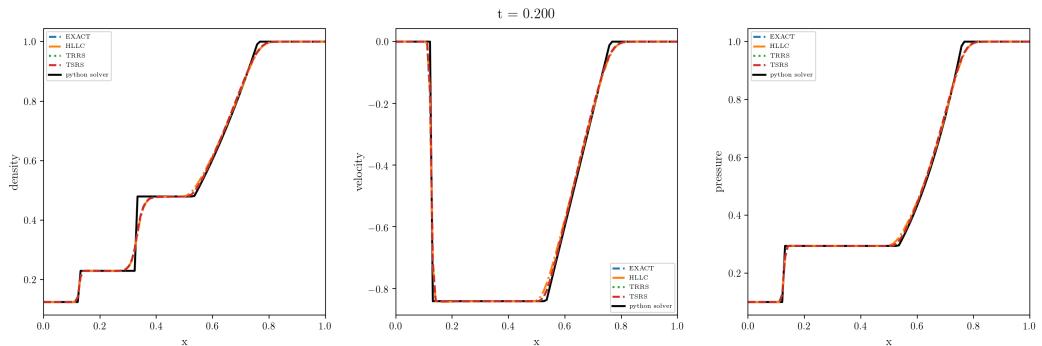
**Figure 115:** WAF method for (right facing) sod shock, MINMOD flux limiter. Expected result.



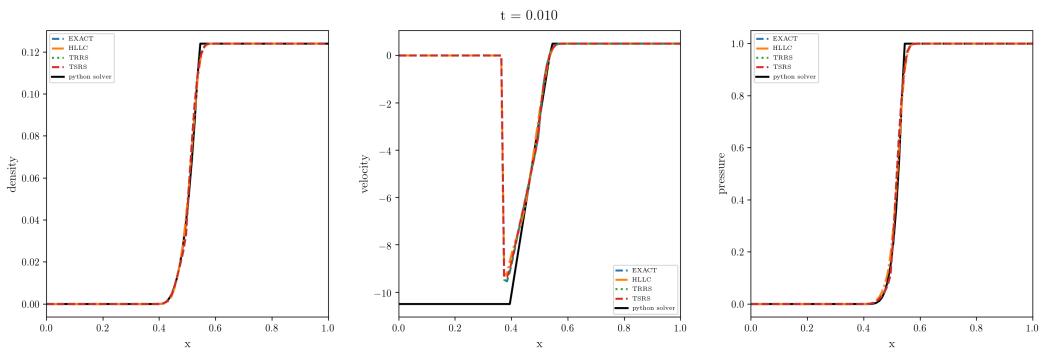
**Figure 116:** WAF method for (right facing) sod shock, MINMOD flux limiter. Obtained result.



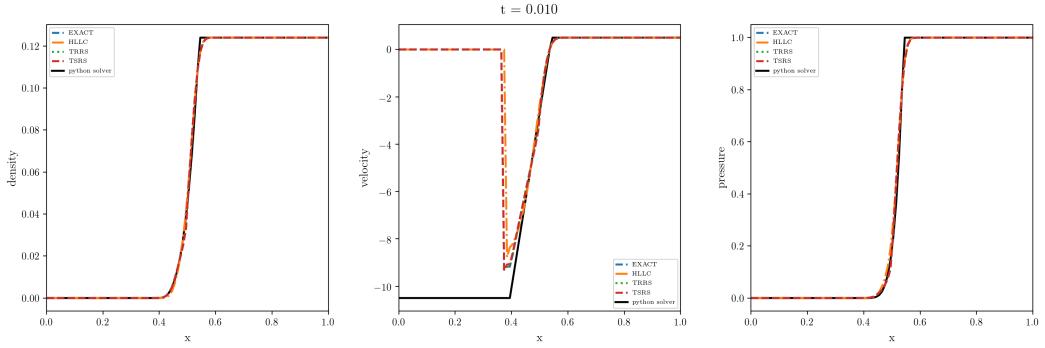
**Figure 117:** WAF method for (left facing) sod shock, MINMOD flux limiter. Expected result.



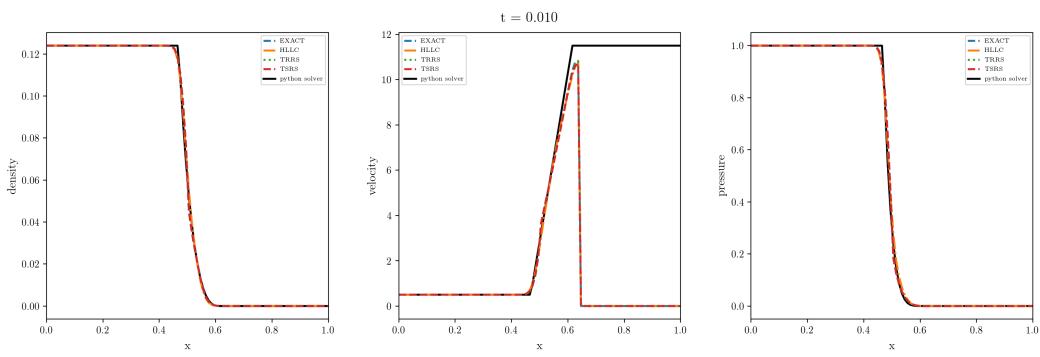
**Figure 118:** WAF method for (left facing) sod shock, MINMOD flux limiter. Obtained result.



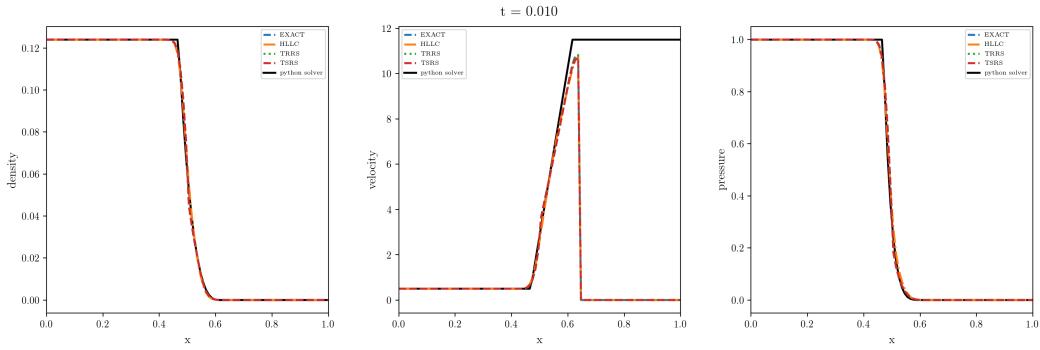
**Figure 119:** WAF method for left vacuum state, MINMOD flux limiter. Expected result.



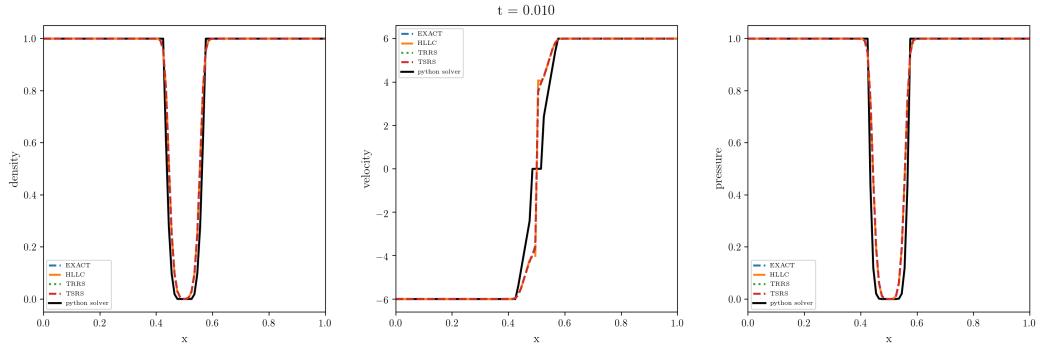
**Figure 120:** WAF method for left vacuum state, MINMOD flux limiter. Obtained result.



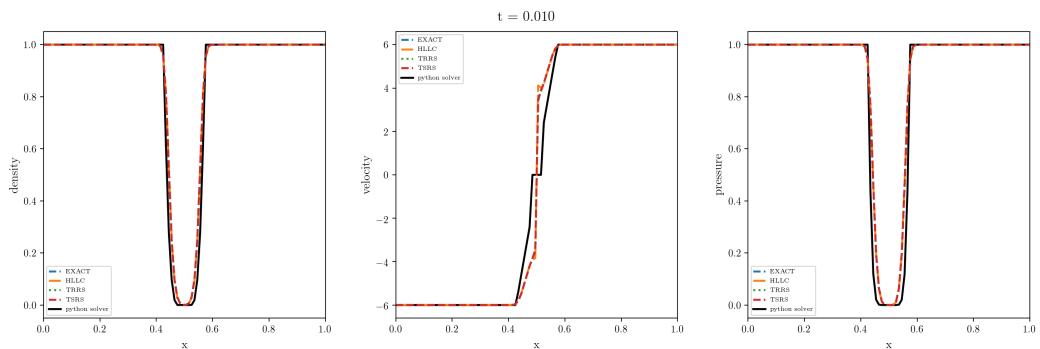
**Figure 121:** WAF method for left vacuum state, MINMOD flux limiter. Expected result.



**Figure 122:** WAF method for left vacuum state, MINMOD flux limiter. Obtained result.

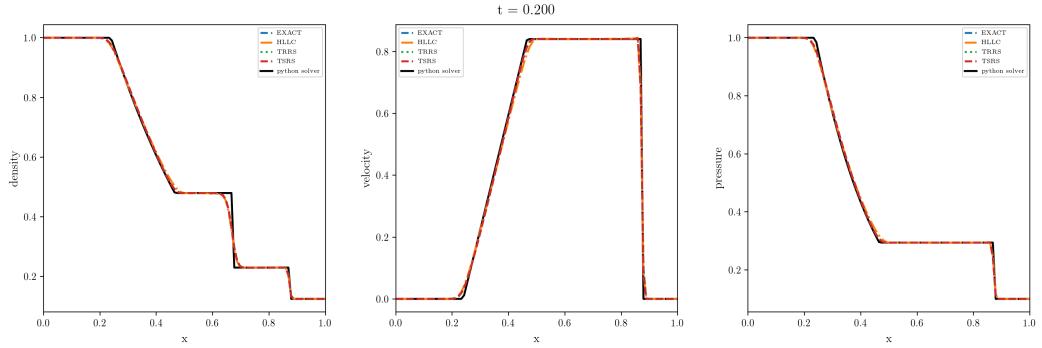


**Figure 123:** WAF method for vacuum generating conditions, MINMOD flux limiter.  
Expected result.

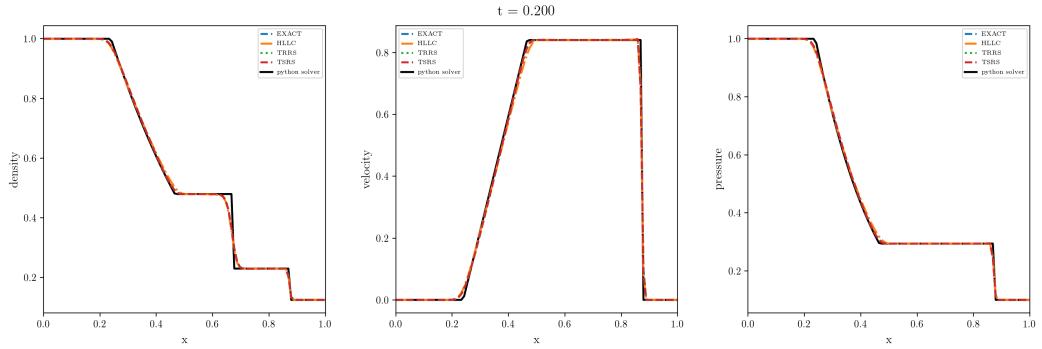


**Figure 124:** WAF method for vacuum generating conditions, MINMOD flux limiter.  
Obtained result.

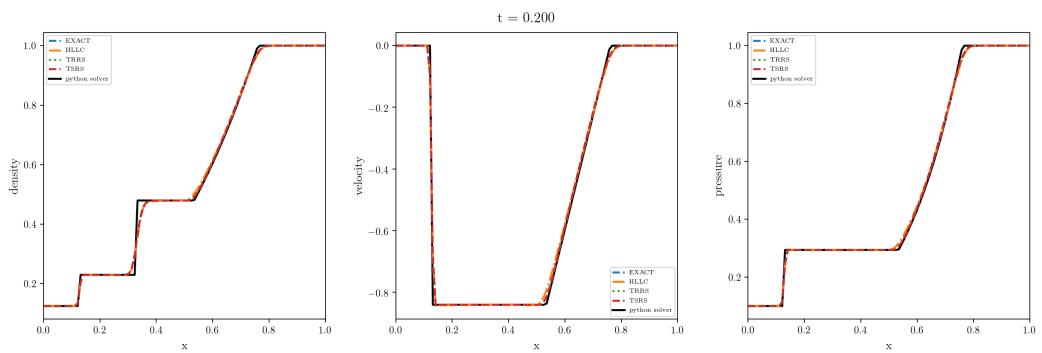
#### 4.1.4 van Leer limiter



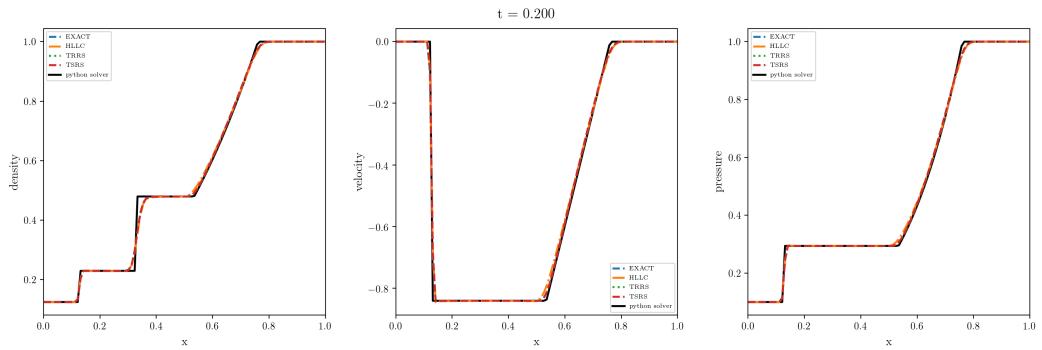
**Figure 125:** WAF method for (right facing) sod shock, van Leer flux limiter. Expected result.



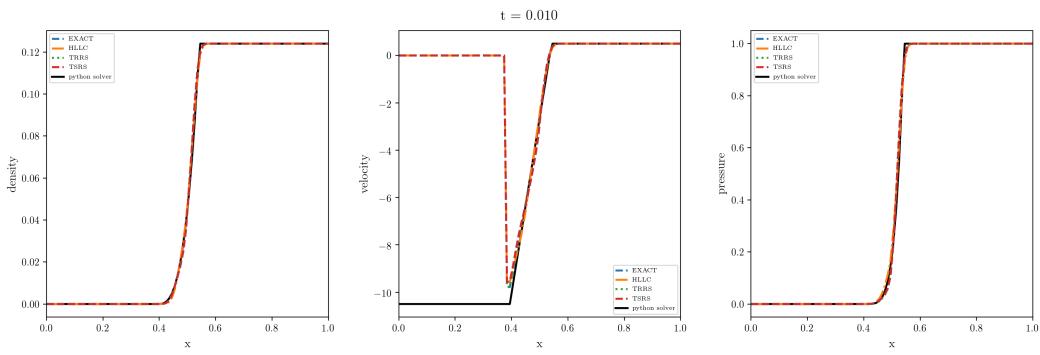
**Figure 126:** WAF method for (right facing) sod shock, van Leer flux limiter. Obtained result.



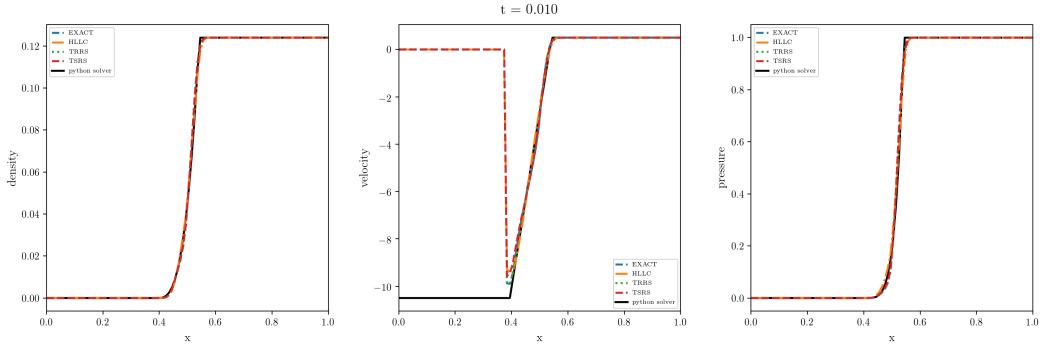
**Figure 127:** WAF method for (left facing) sod shock, van Leer flux limiter. Expected result.



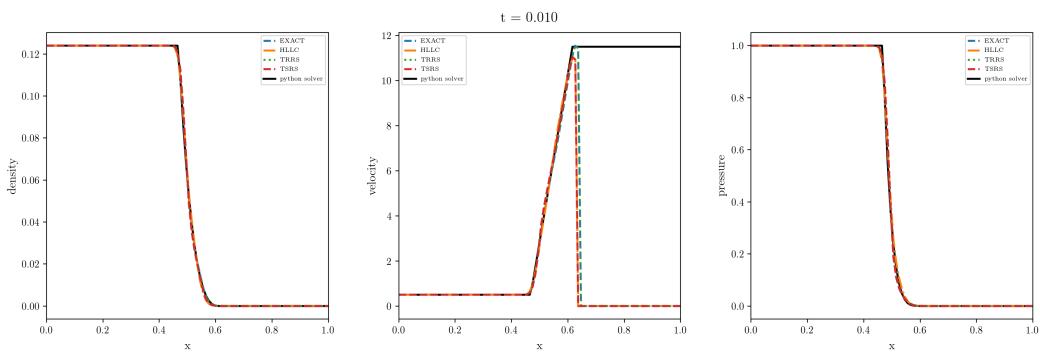
**Figure 128:** WAF method for (left facing) sod shock, van Leer flux limiter. Obtained result.



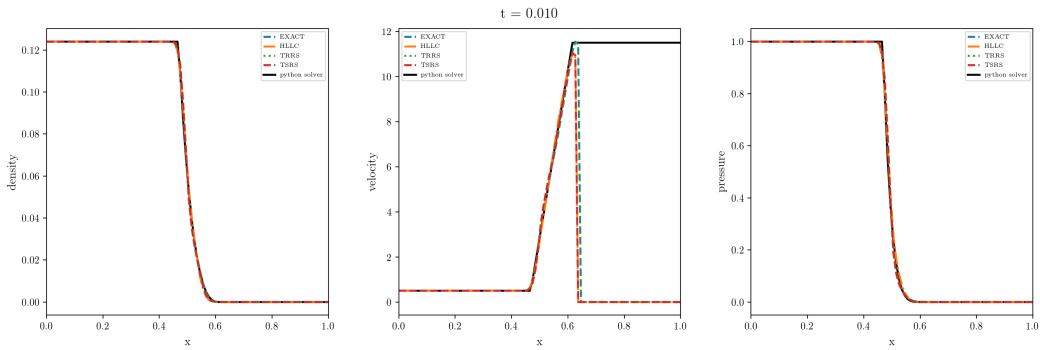
**Figure 129:** WAF method for left vacuum state, van Leer flux limiter. Expected result.



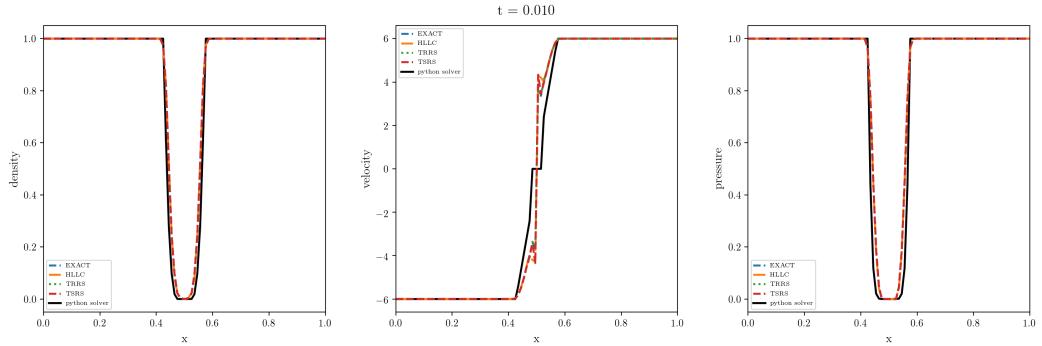
**Figure 130:** WAF method for left vacuum state, van Leer flux limiter. Obtained result.



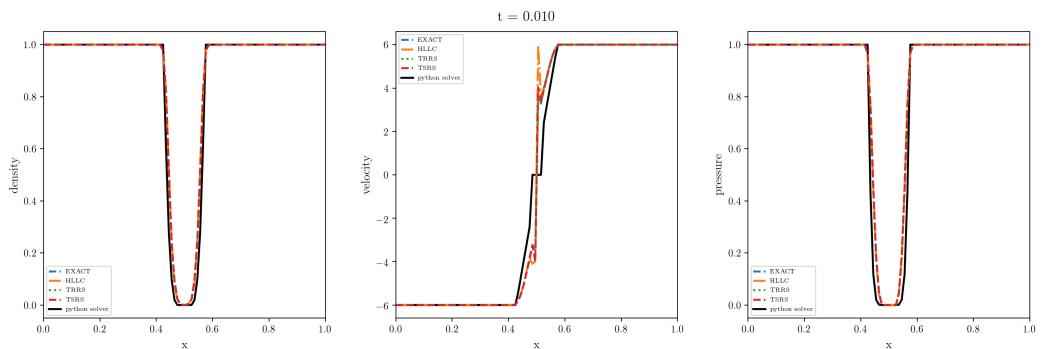
**Figure 131:** WAF method for left vacuum state, van Leer flux limiter. Expected result.



**Figure 132:** WAF method for left vacuum state, van Leer flux limiter. Obtained result.

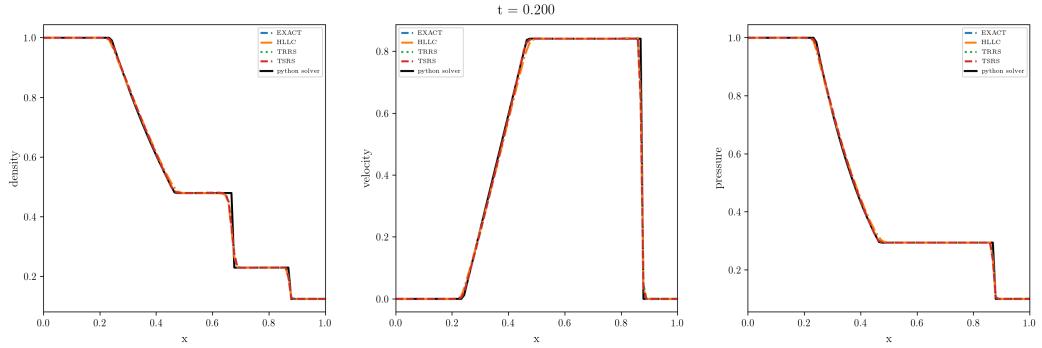


**Figure 133:** WAF method for vacuum generating conditions, van Leer flux limiter.  
Expected result.

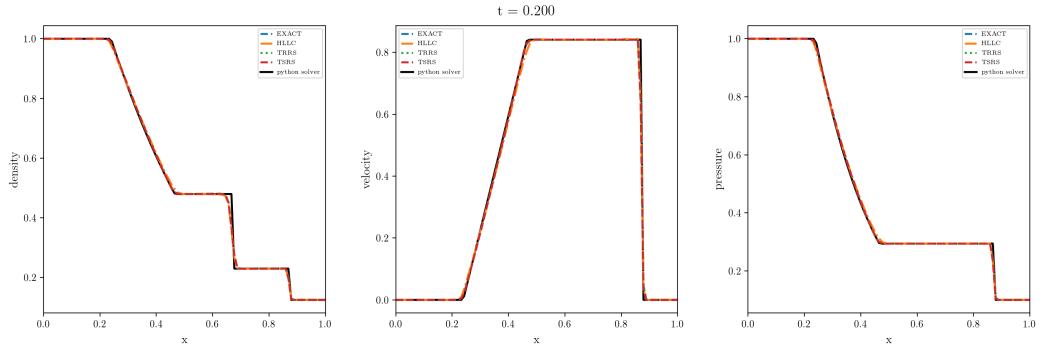


**Figure 134:** WAF method for vacuum generating conditions, van Leer flux limiter.  
Obtained result.

#### 4.1.5 SUPERBEE limiter

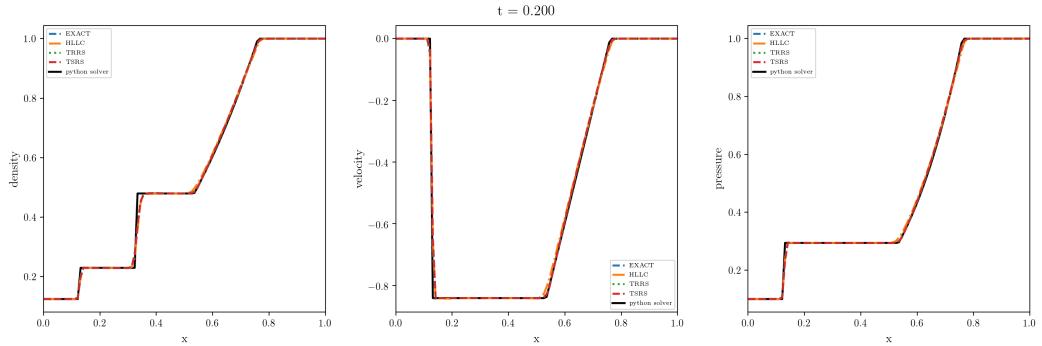


**Figure 135:** WAF method for (right facing) sod shock, SUPERBEE flux limiter. Expected result.

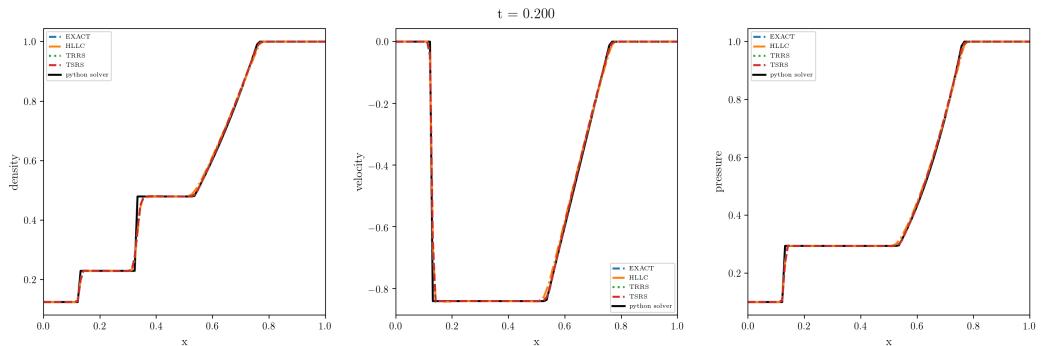


**Figure 136:** WAF method for (right facing) sod shock, SUPERBEE flux limiter. Obtained result.

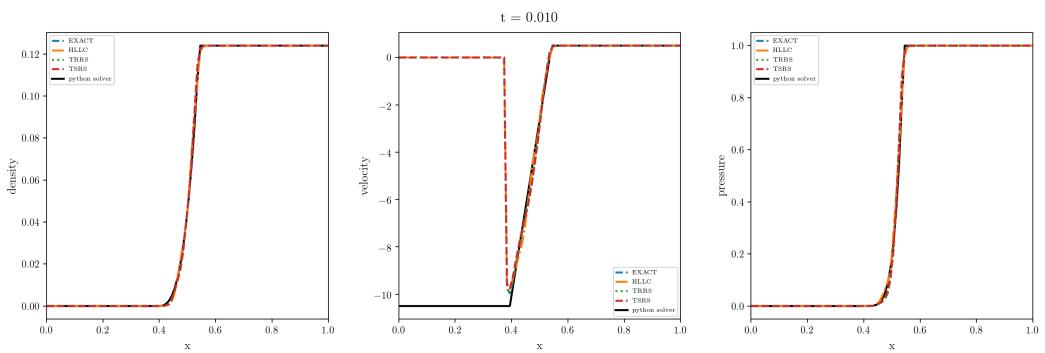
## 4.2 2D with different Limiters



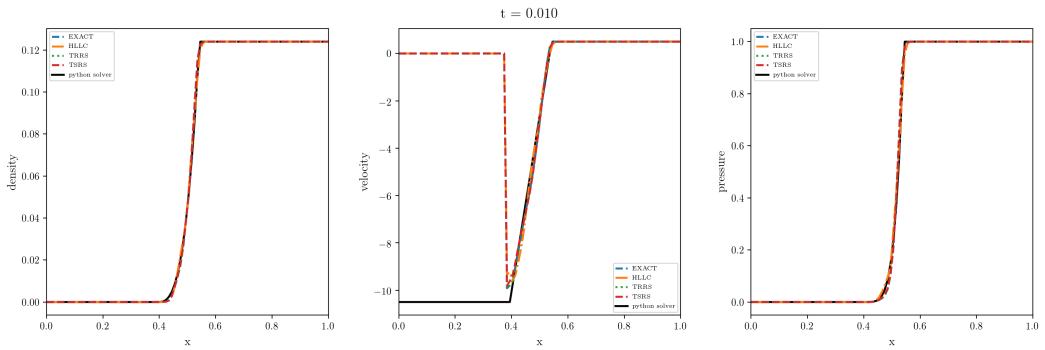
**Figure 137:** WAF method for (left facing) sod shock, SUPERBEE flux limiter. Expected result.



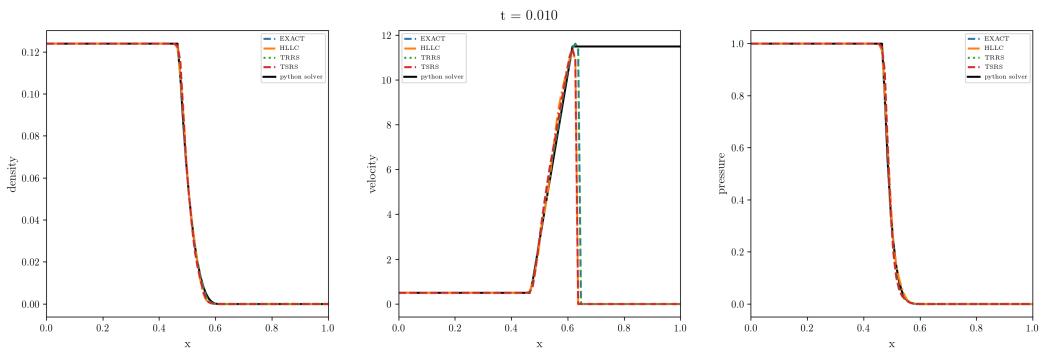
**Figure 138:** WAF method for (left facing) sod shock, SUPERBEE flux limiter. Obtained result.



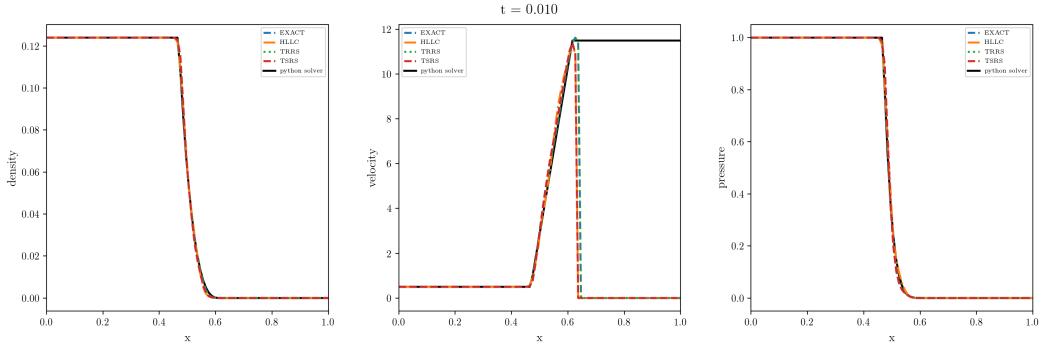
**Figure 139:** WAF method for left vacuum state, SUPERBEE flux limiter. Expected result.



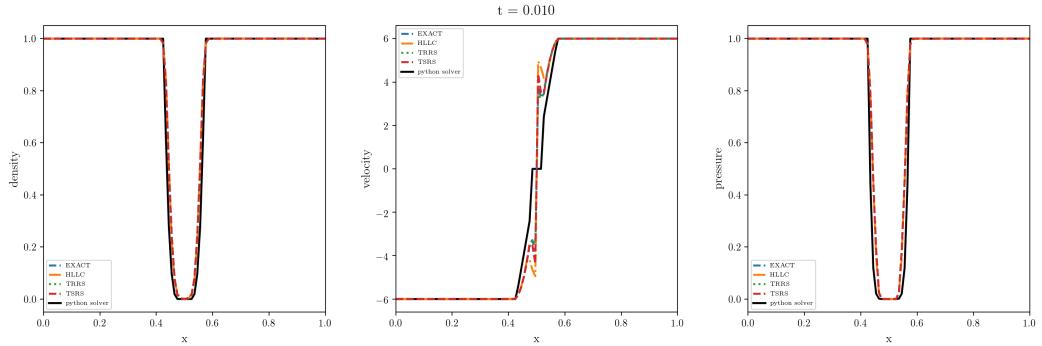
**Figure 140:** WAF method for left vacuum state, SUPERBEE flux limiter. Obtained result.



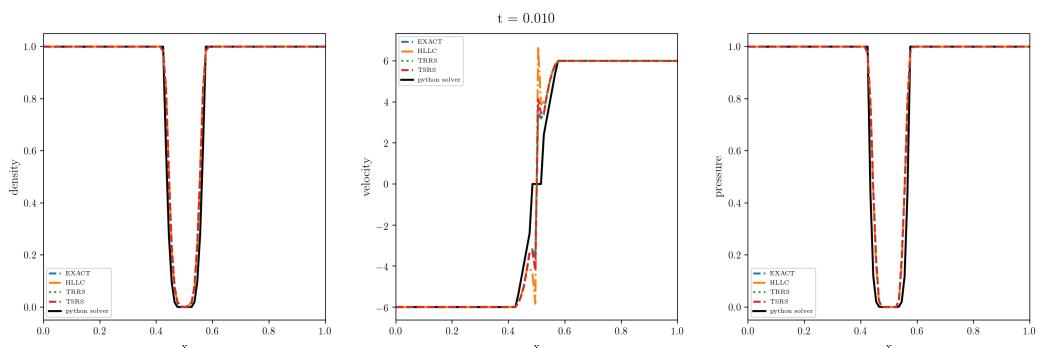
**Figure 141:** WAF method for left vacuum state, SUPERBEE flux limiter. Expected result.



**Figure 142:** WAF method for left vacuum state, SUPERBEE flux limiter. Obtained result.

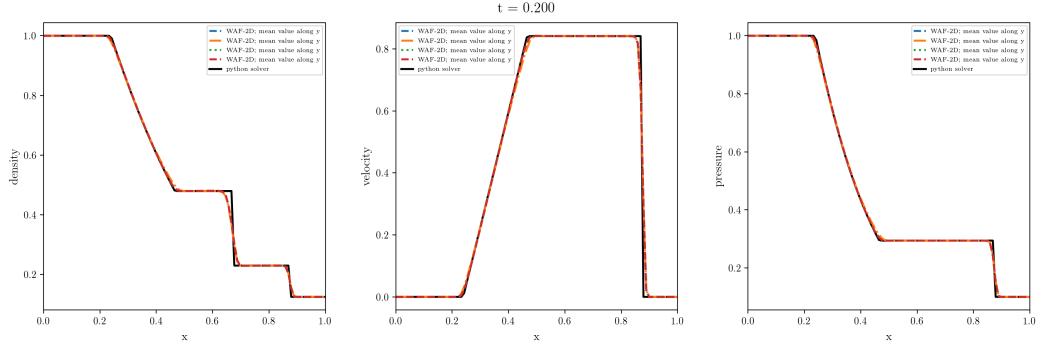


**Figure 143:** WAF method for vacuum generating conditions, SUPERBEE flux limiter.  
Expected result.

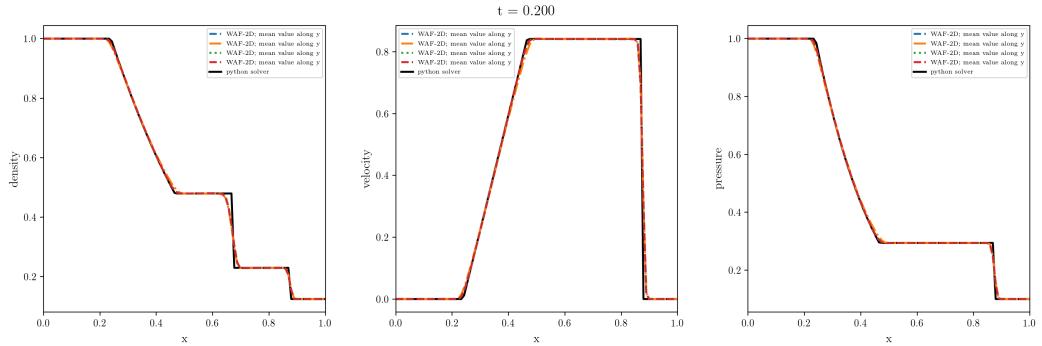


**Figure 144:** WAF method for vacuum generating conditions, SUPERBEE flux limiter.  
Obtained result.

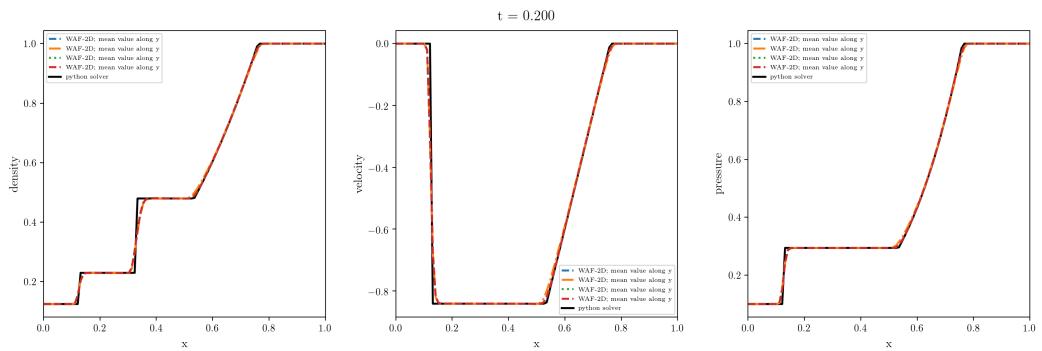
#### 4.2.1 MC limiter



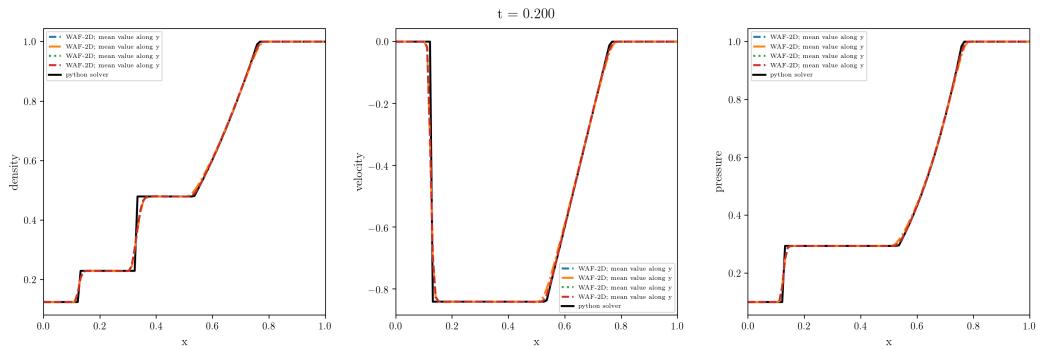
**Figure 145:** WAF method for (right facing) sod shock, MC flux limiter. Expected result.



**Figure 146:** WAF method for (right facing) sod shock, MC flux limiter. Obtained result.

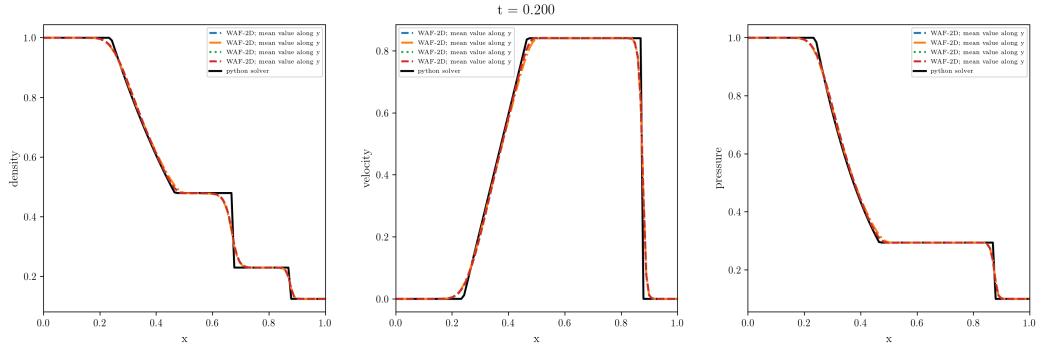


**Figure 147:** WAF method for (left facing) sod shock, MC flux limiter. Expected result.

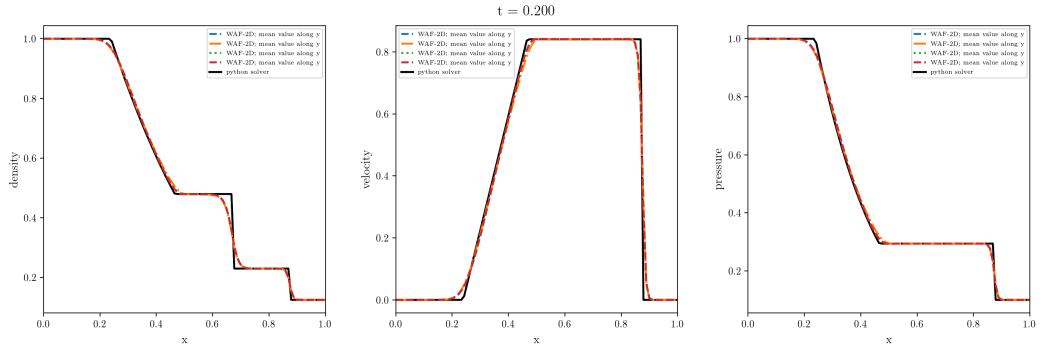


**Figure 148:** WAF method for (left facing) sod shock, MC flux limiter. Obtained result.

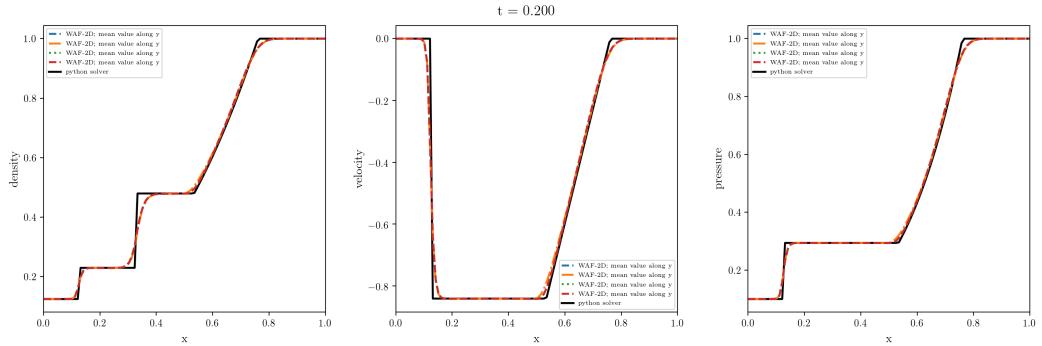
#### 4.2.2 MINMOD limiter



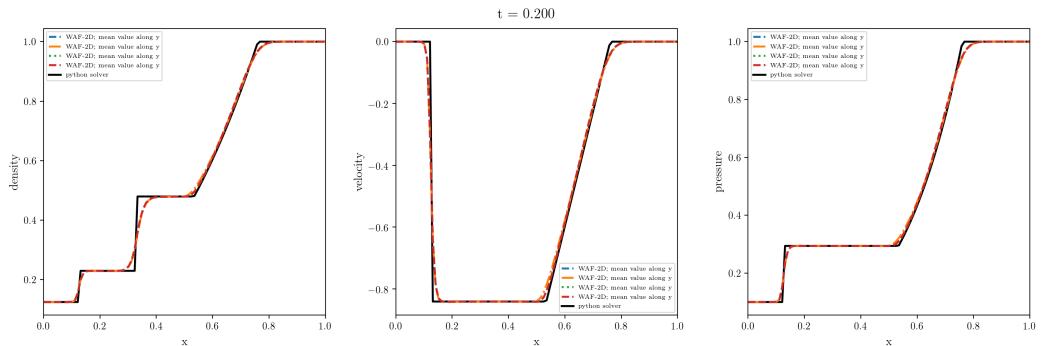
**Figure 149:** WAF method for (right facing) sod shock, MINMOD flux limiter. Expected result.



**Figure 150:** WAF method for (right facing) sod shock, MINMOD flux limiter. Obtained result.

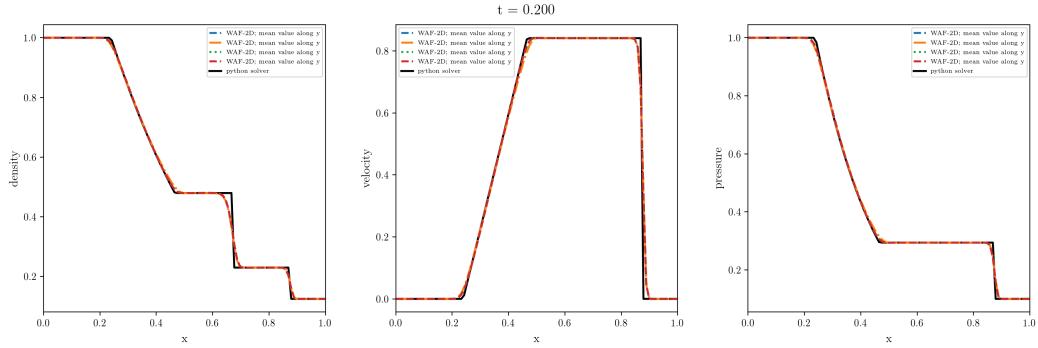


**Figure 151:** WAF method for (left facing) sod shock, MINMOD flux limiter. Expected result.

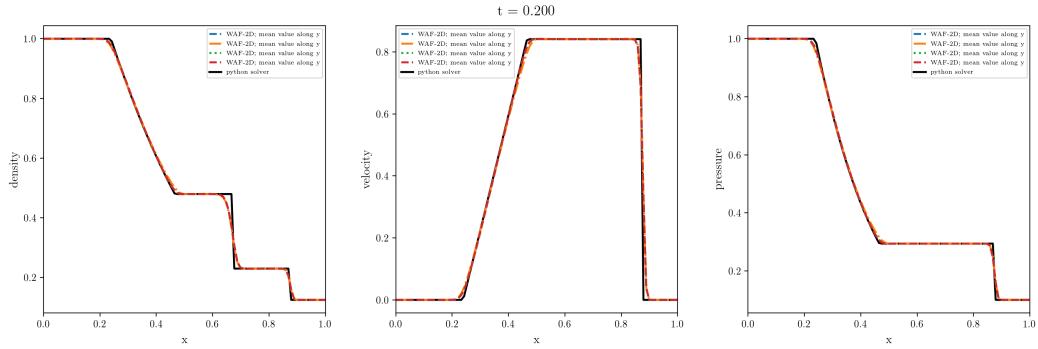


**Figure 152:** WAF method for (left facing) sod shock, MINMOD flux limiter. Obtained result.

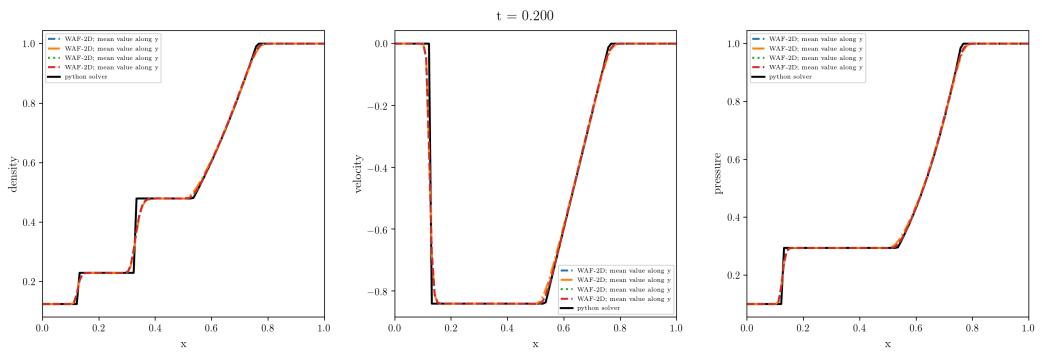
#### 4.2.3 van Leer limiter



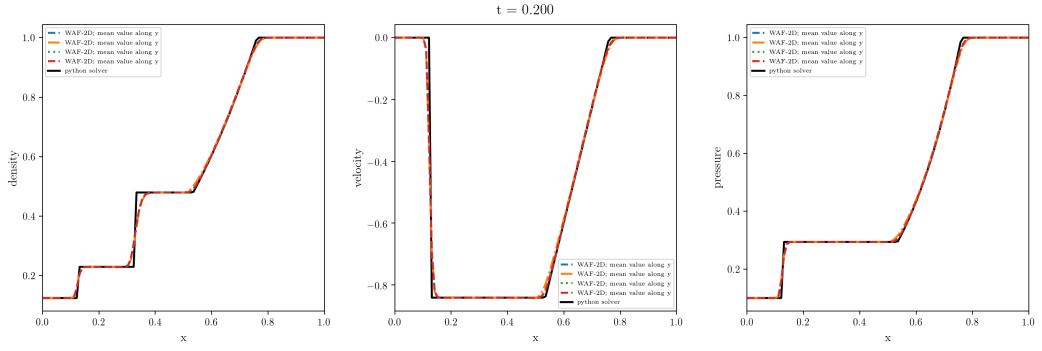
**Figure 153:** WAF method for (right facing) sod shock, van Leer flux limiter. Expected result.



**Figure 154:** WAF method for (right facing) sod shock, van Leer flux limiter. Obtained result.

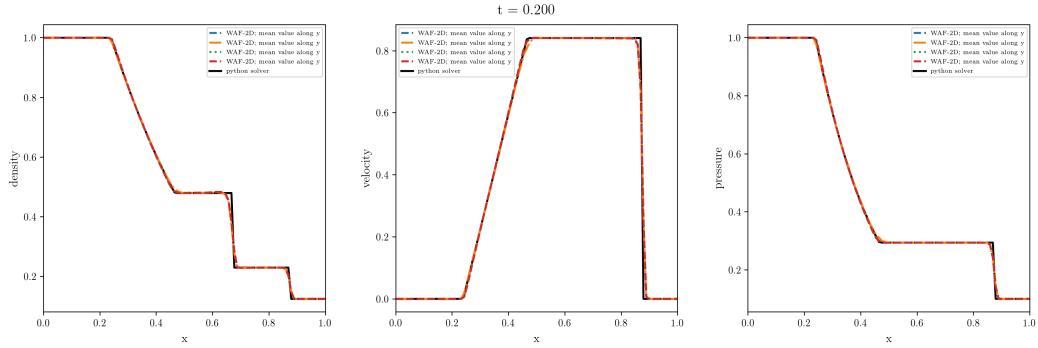


**Figure 155:** WAF method for (left facing) sod shock, van Leer flux limiter. Expected result.

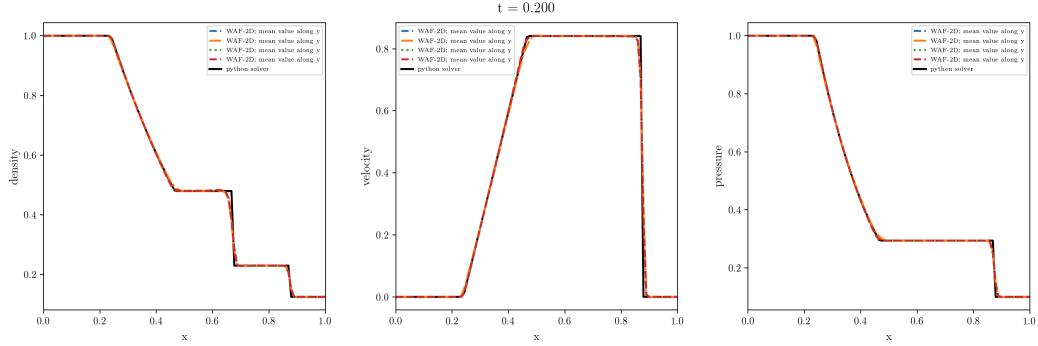


**Figure 156:** WAF method for (left facing) sod shock, van Leer flux limiter. Obtained result.

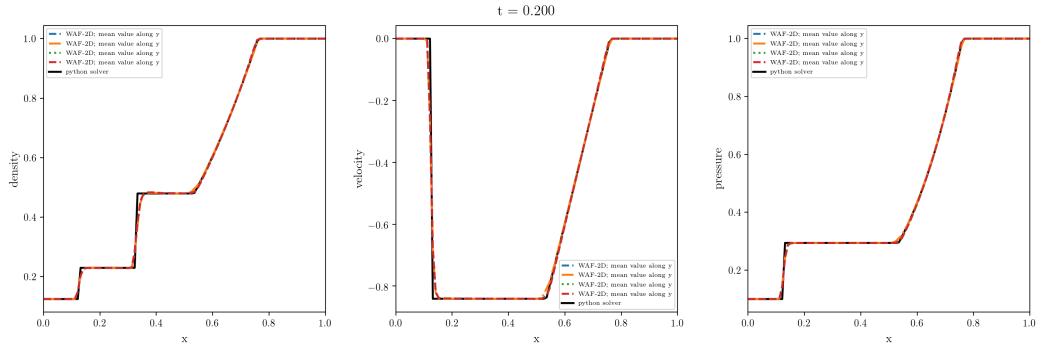
#### 4.2.4 SUPERBEE limiter



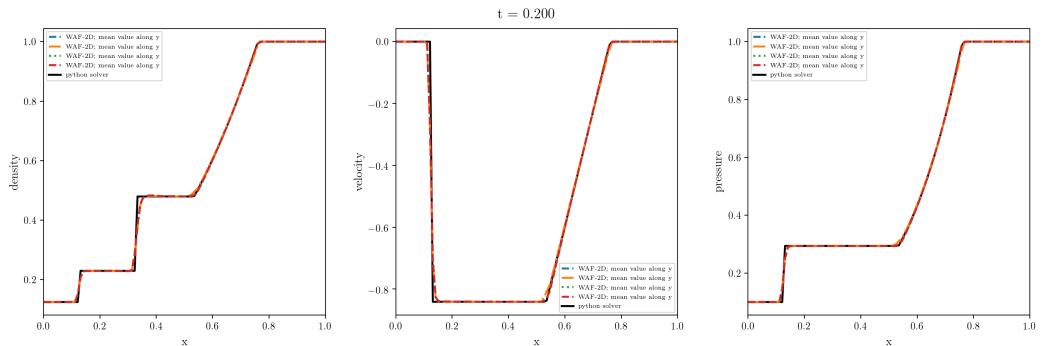
**Figure 157:** WAF method for (right facing) sod shock, SUPERBEE flux limiter. Expected result.



**Figure 158:** WAF method for (right facing) sod shock, SUPERBEE flux limiter. Obtained result.

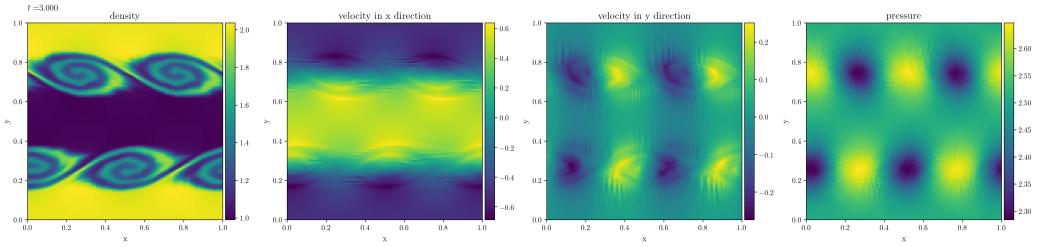


**Figure 159:** WAF method for (left facing) sod shock, SUPERBEE flux limiter. Expected result.

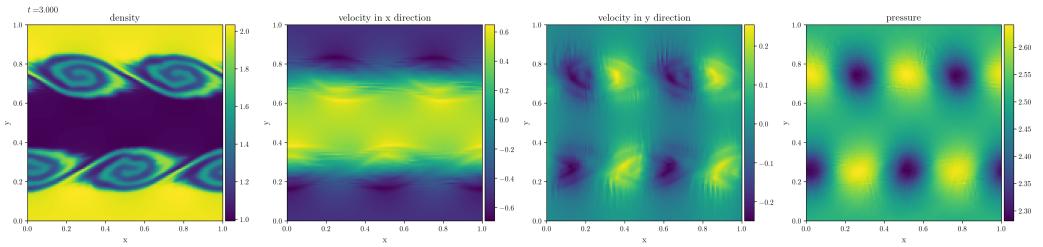


**Figure 160:** WAF method for (left facing) sod shock, SUPERBEE flux limiter. Obtained result.

### 4.3 Others in 2D



**Figure 161:** WAF method for Kelvin Helmholtz instability. Expected result with HLLC solver and van Leer limiter.

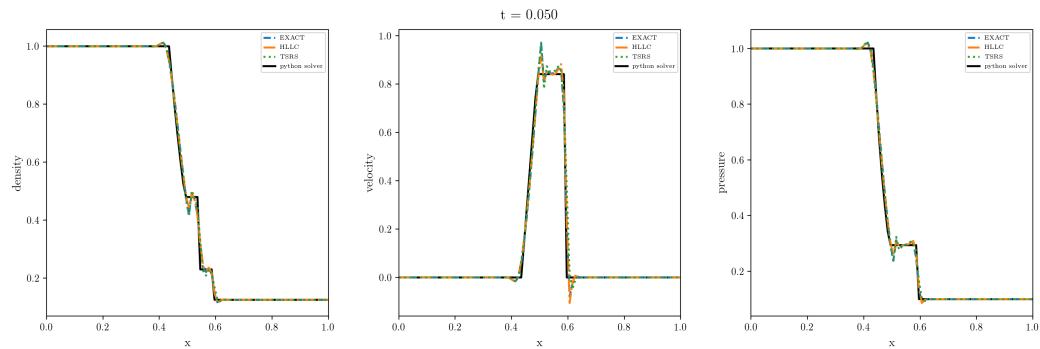


**Figure 162:** WAF method for Kelvin Helmholtz instability. Obtained result with HLLC solver and van Leer limiter.

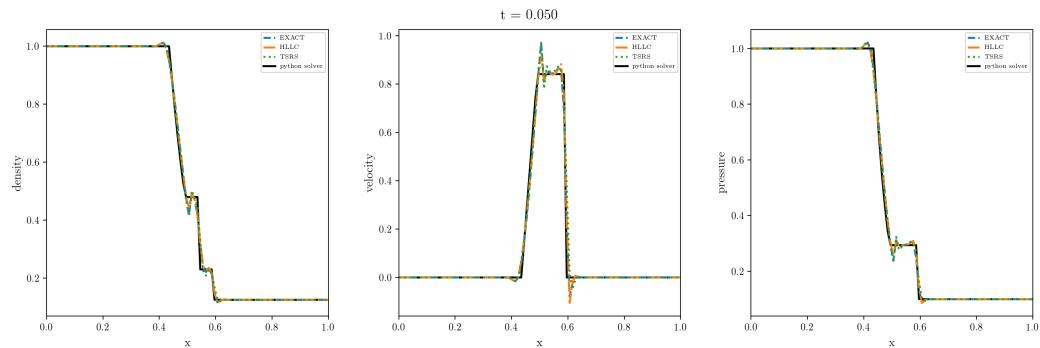
## 5 MUSCL Method

### 5.1 1D with different Limiters

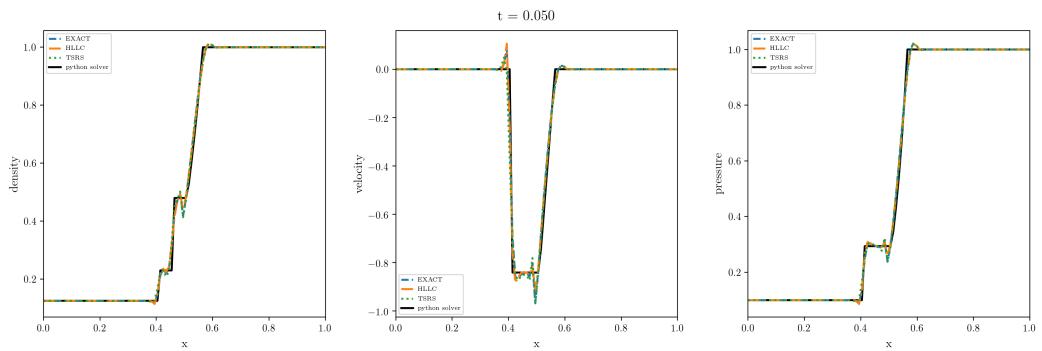
#### 5.1.1 Without limiter



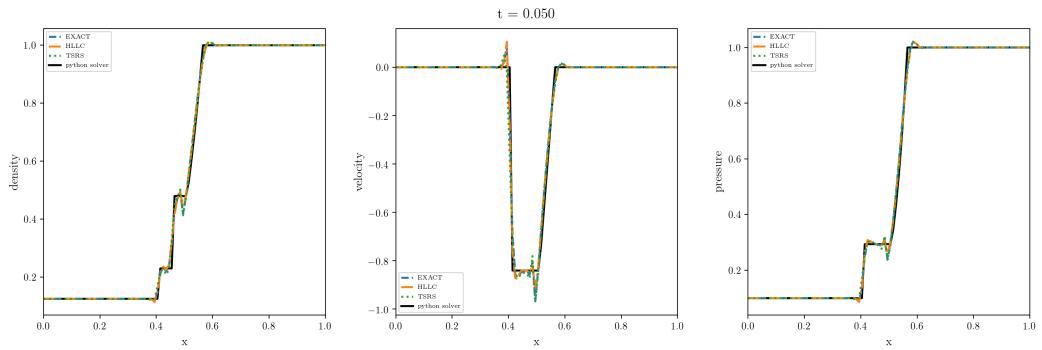
**Figure 163:** MUSCL method for (right facing) sod shock, no flux limiter. Expected result.



**Figure 164:** MUSCL method for (right facing) sod shock, no flux limiter. Obtained result.

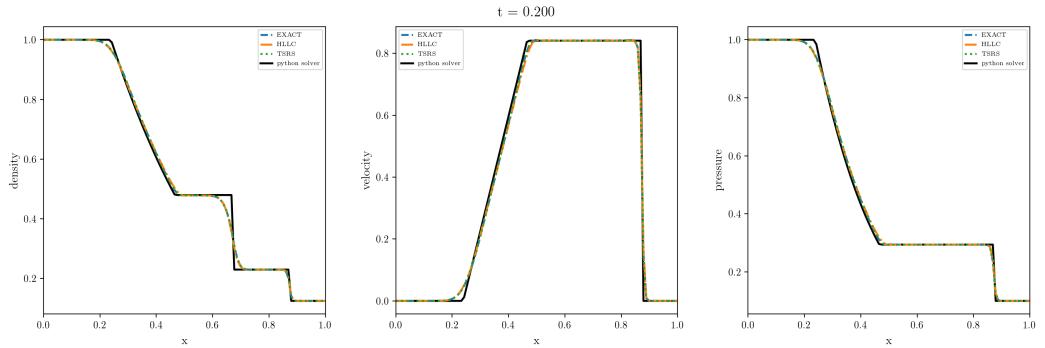


**Figure 165:** MUSCL method for (left facing) sod shock, no flux limiter. Expected result.

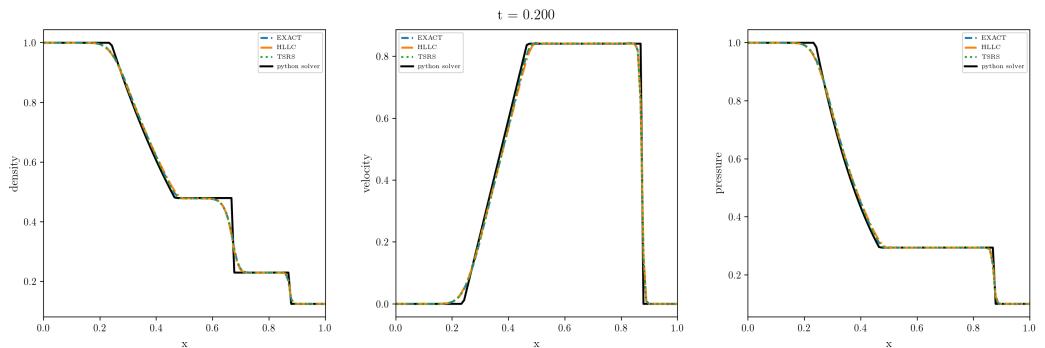


**Figure 166:** MUSCL method for (left facing) sod shock, no flux limiter. Obtained result.

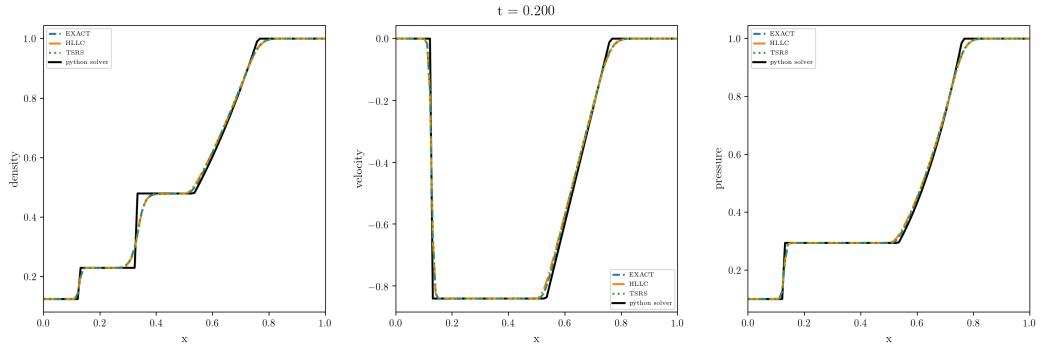
### 5.1.2 MINMOD limiter



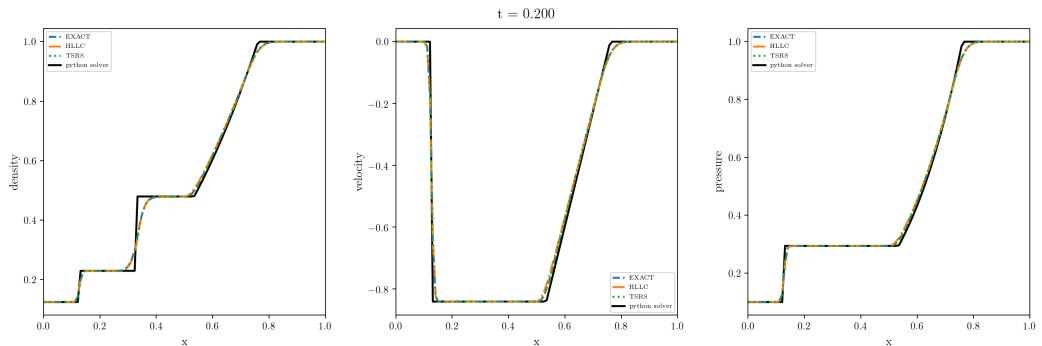
**Figure 167:** MUSCL method for (right facing) sod shock, MINMOD flux limiter. Expected result.



**Figure 168:** MUSCL method for (right facing) sod shock, MINMOD flux limiter. Obtained result.

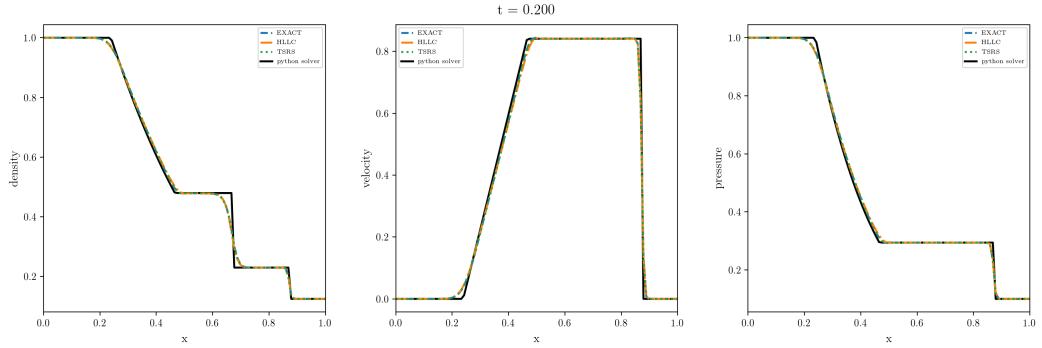


**Figure 169:** MUSCL method for (left facing) sod shock, MINMOD flux limiter. Expected result.

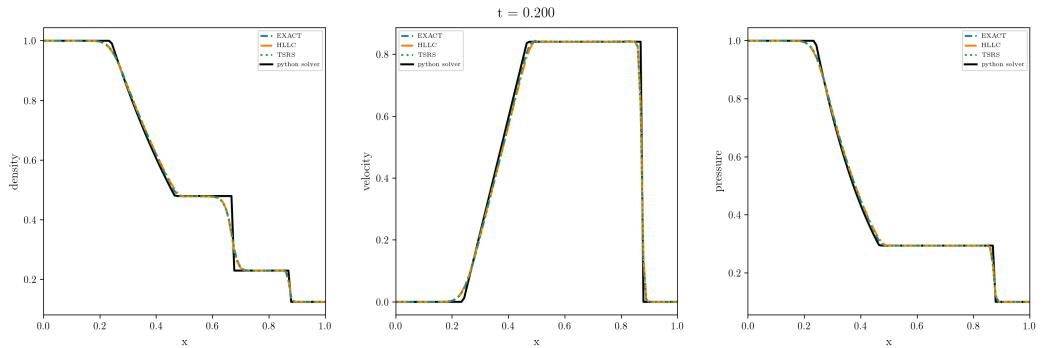


**Figure 170:** MUSCL method for (left facing) sod shock, MINMOD flux limiter. Obtained result.

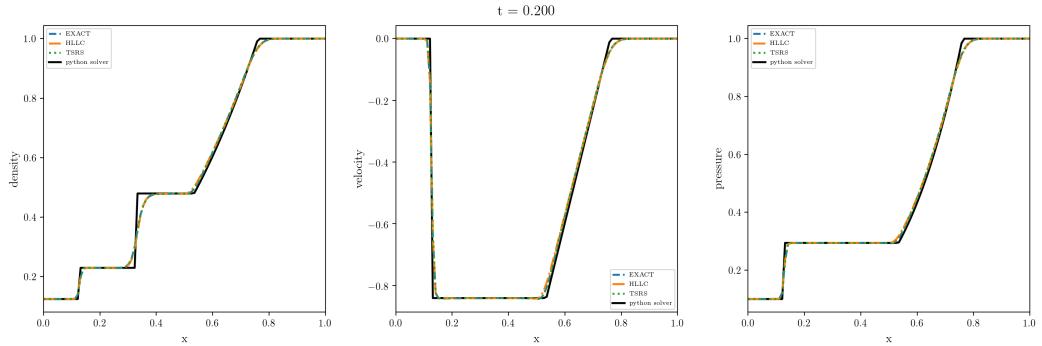
### 5.1.3 van Leer limiter



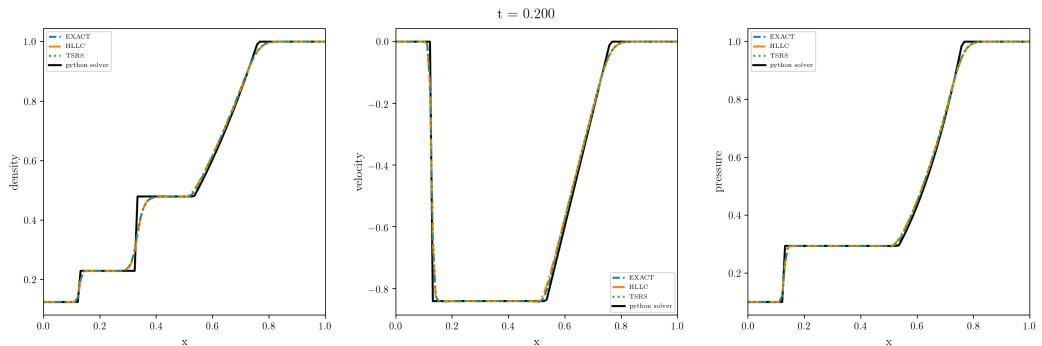
**Figure 171:** MUSCL method for (right facing) sod shock, van Leer flux limiter. Expected result.



**Figure 172:** MUSCL method for (right facing) sod shock, van Leer flux limiter. Obtained result.

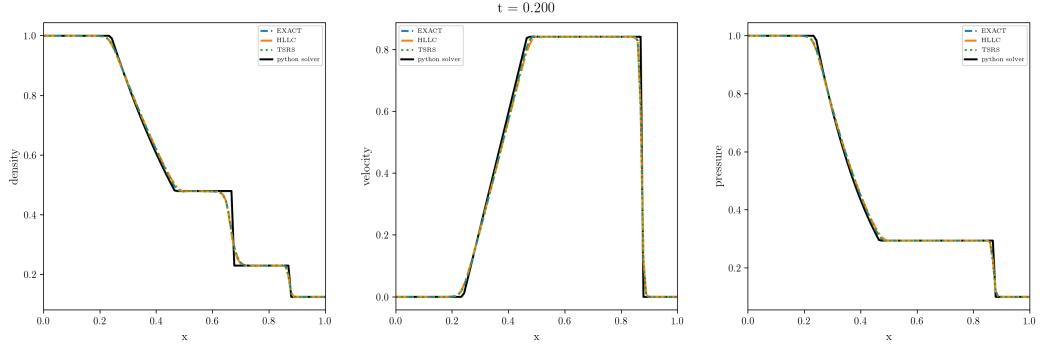


**Figure 173:** MUSCL method for (left facing) sod shock, van Leer flux limiter. Expected result.

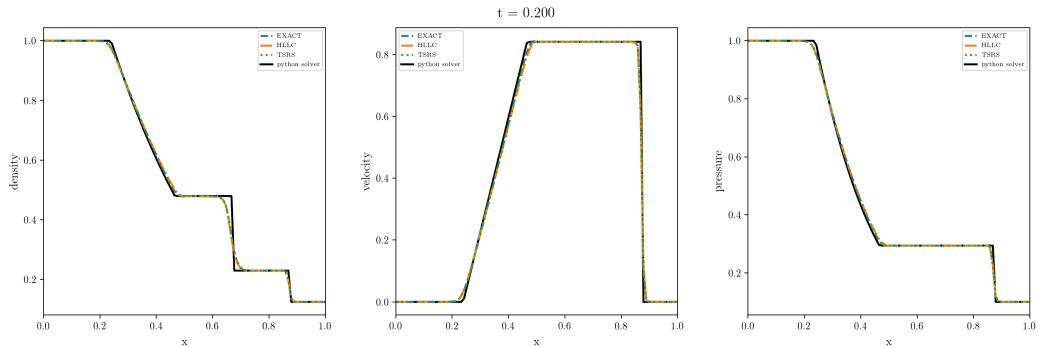


**Figure 174:** MUSCL method for (left facing) sod shock, van Leer flux limiter. Obtained result.

#### 5.1.4 SUPERBEE limiter

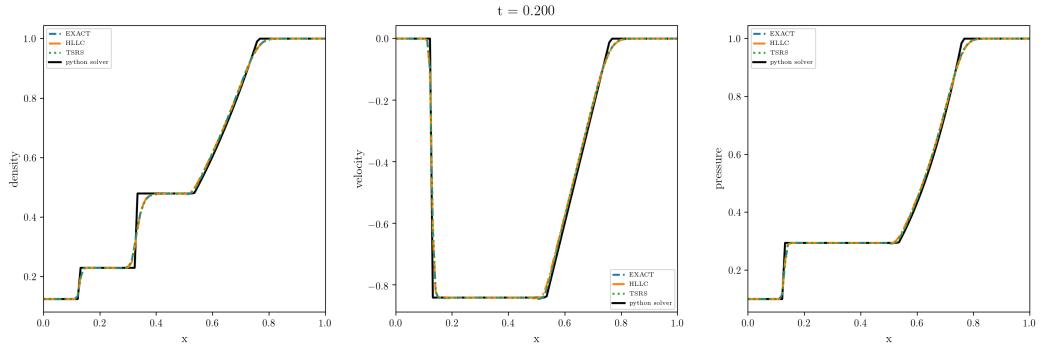


**Figure 175:** MUSCL method for (right facing) sod shock, SUPERBEE flux limiter.  
Expected result.

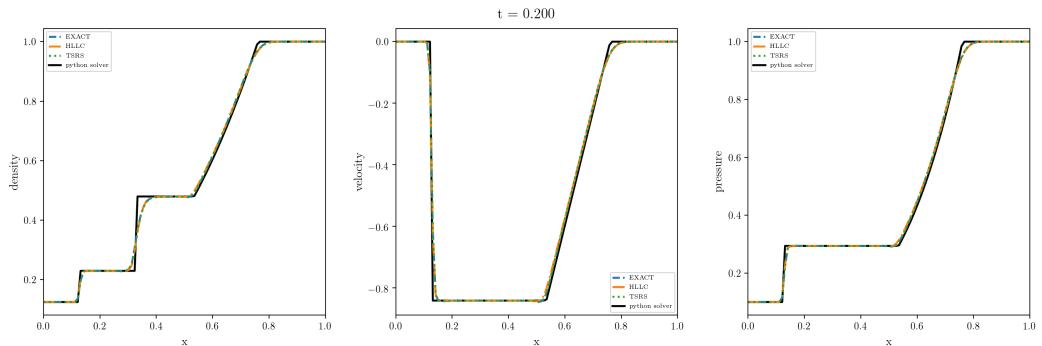


**Figure 176:** MUSCL method for (right facing) sod shock, SUPERBEE flux limiter.  
Obtained result.

#### 5.2 2D with different Limiters

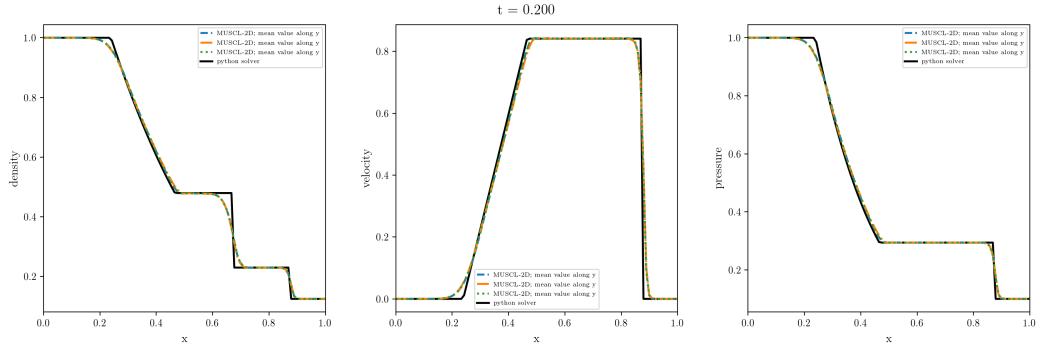


**Figure 177:** MUSCL method for (left facing) sod shock, SUPERBEE flux limiter. Expected result.

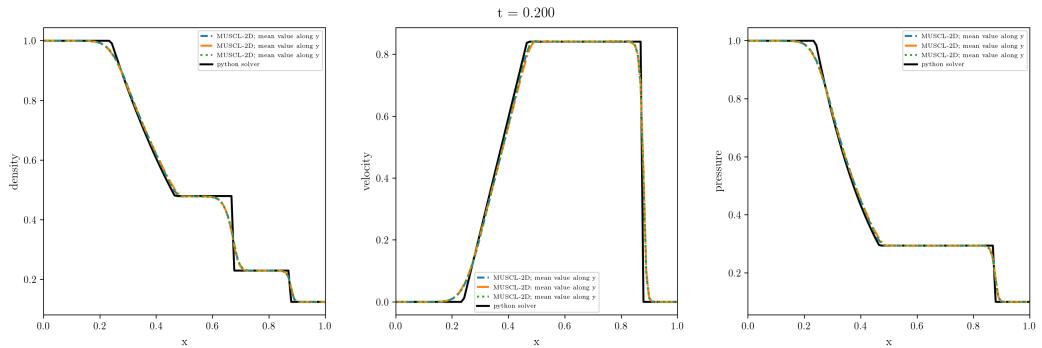


**Figure 178:** MUSCL method for (left facing) sod shock, SUPERBEE flux limiter. Obtained result.

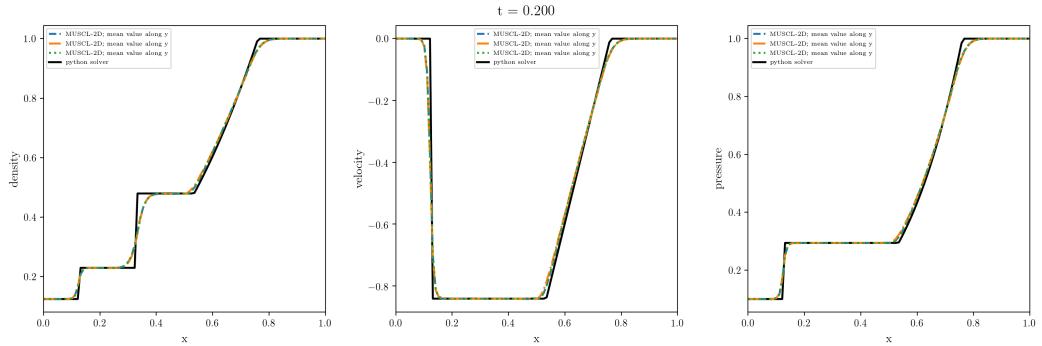
### 5.2.1 MINMOD limiter



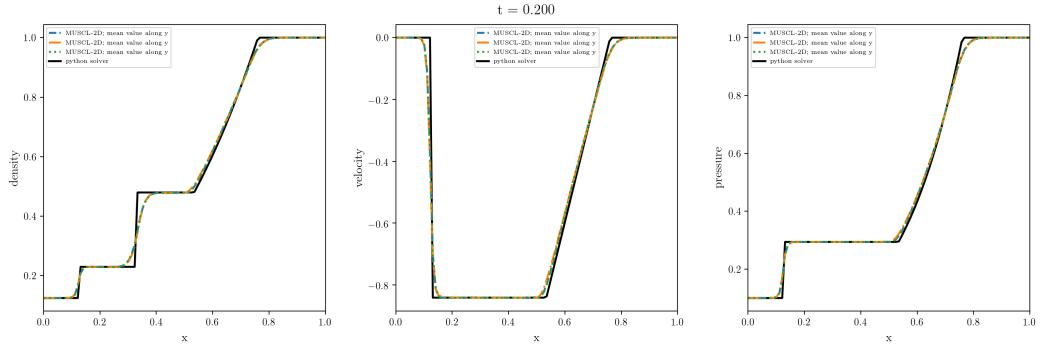
**Figure 179:** MUSCL method for (right facing) sod shock, MINMOD flux limiter. Expected result.



**Figure 180:** MUSCL method for (right facing) sod shock, MINMOD flux limiter. Obtained result.

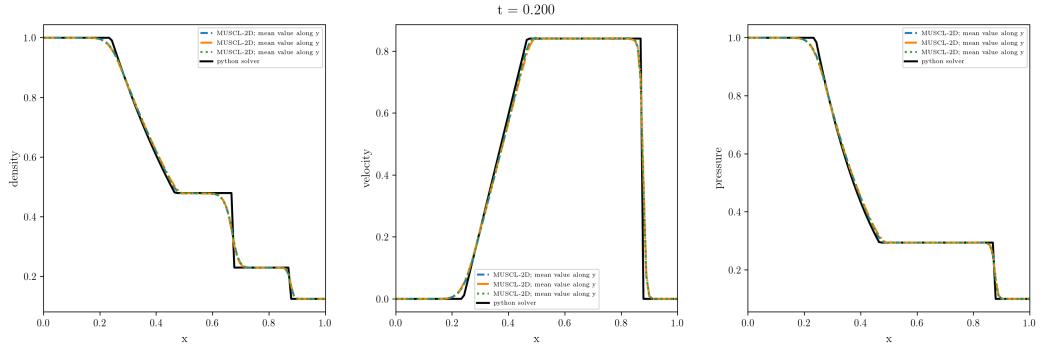


**Figure 181:** MUSCL method for (left facing) sod shock, MINMOD flux limiter. Expected result.

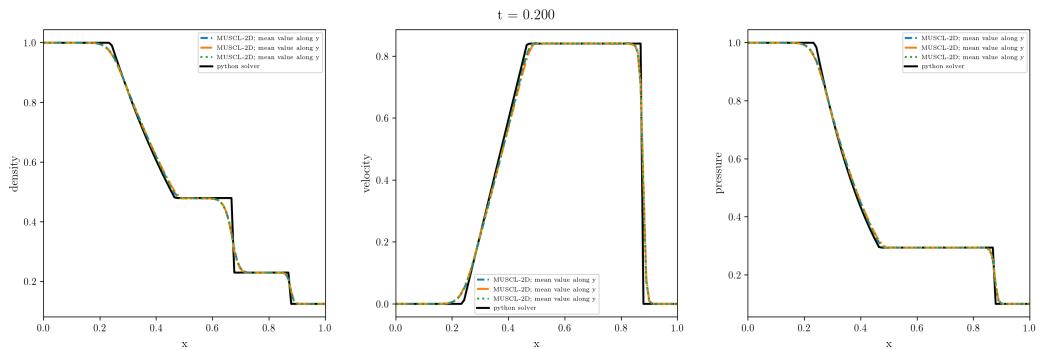


**Figure 182:** MUSCL method for (left facing) sod shock, MINMOD flux limiter. Obtained result.

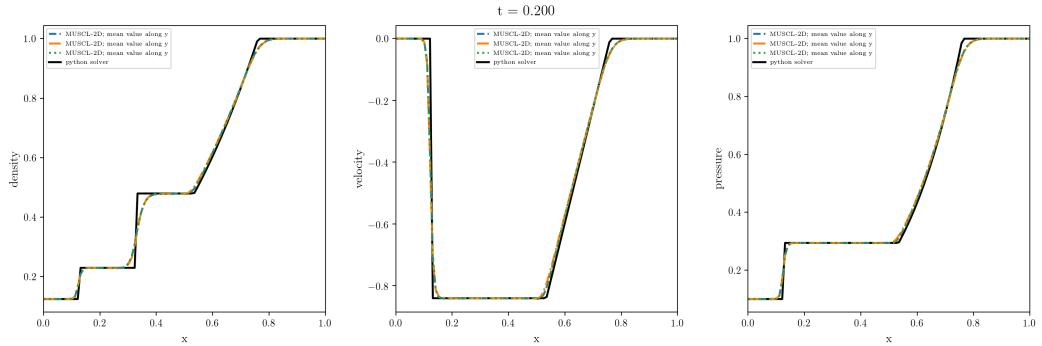
### 5.2.2 van Leer limiter



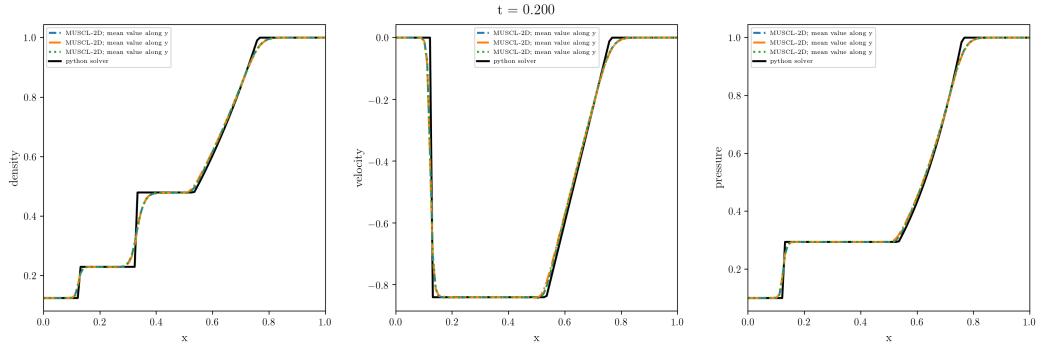
**Figure 183:** MUSCL method for (right facing) sod shock, van Leer flux limiter. Expected result.



**Figure 184:** MUSCL method for (right facing) sod shock, van Leer flux limiter. Obtained result.

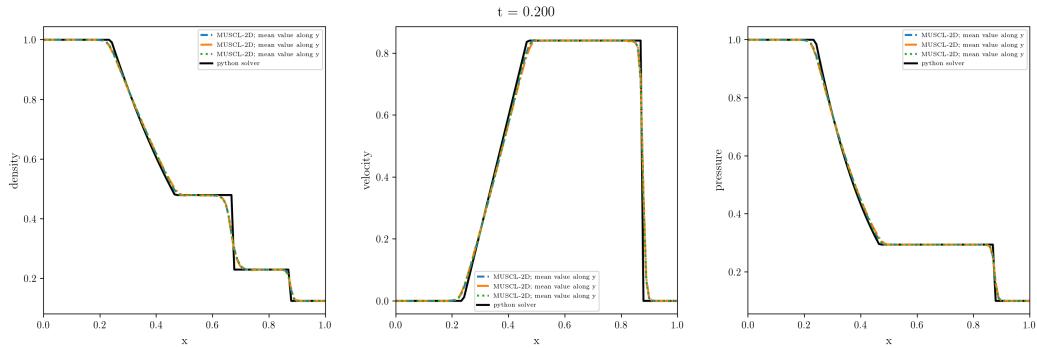


**Figure 185:** MUSCL method for (left facing) sod shock, van Leer flux limiter. Expected result.

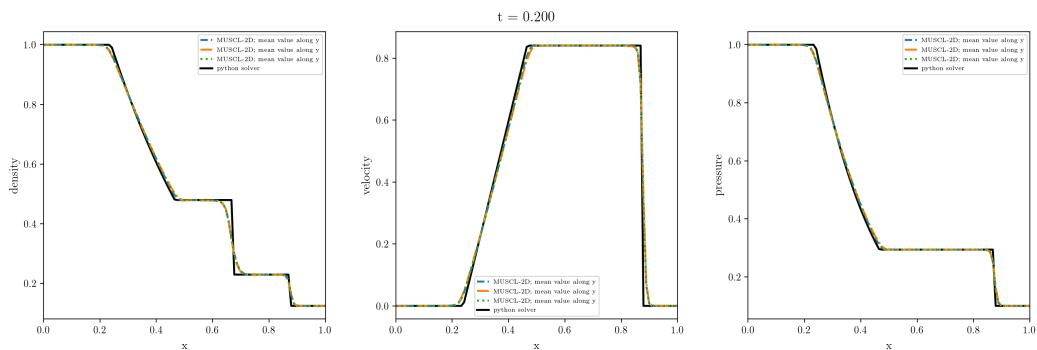


**Figure 186:** MUSCL method for (left facing) sod shock, van Leer flux limiter. Obtained result.

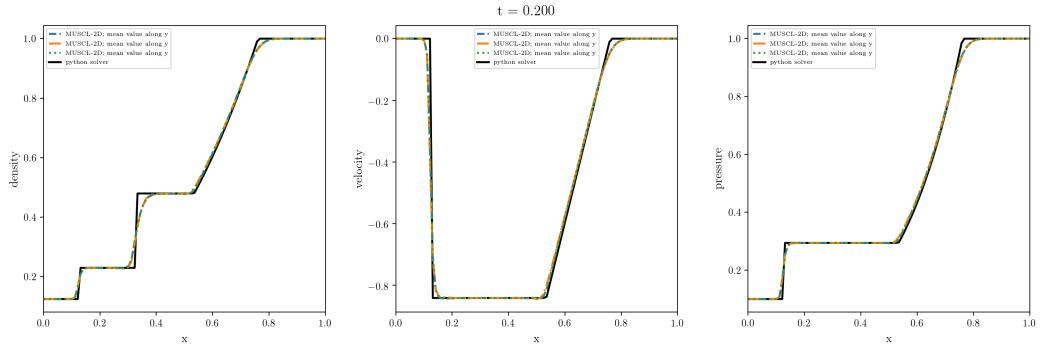
### 5.2.3 SUPERBEE limiter



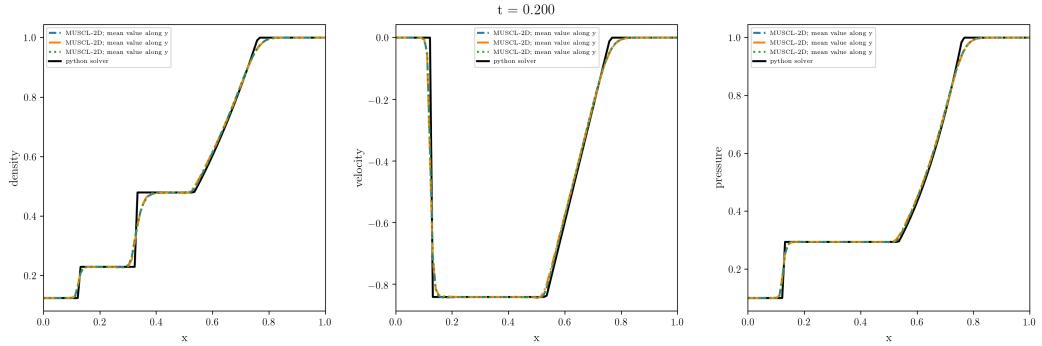
**Figure 187:** MUSCL method for (right facing) sod shock, SUPERBEE flux limiter.  
Expected result.



**Figure 188:** MUSCL method for (right facing) sod shock, SUPERBEE flux limiter.  
Obtained result.

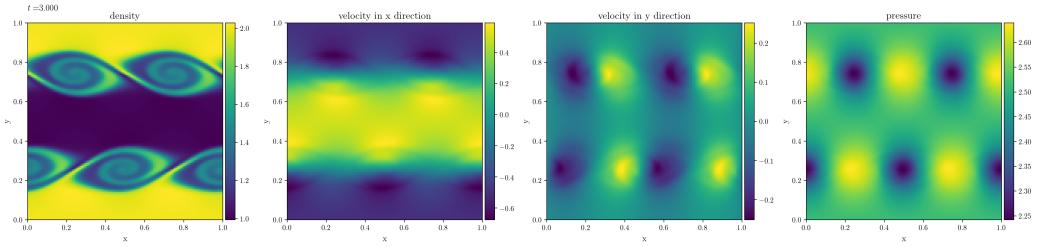


**Figure 189:** MUSCL method for (left facing) sod shock, SUPERBEE flux limiter. Expected result.

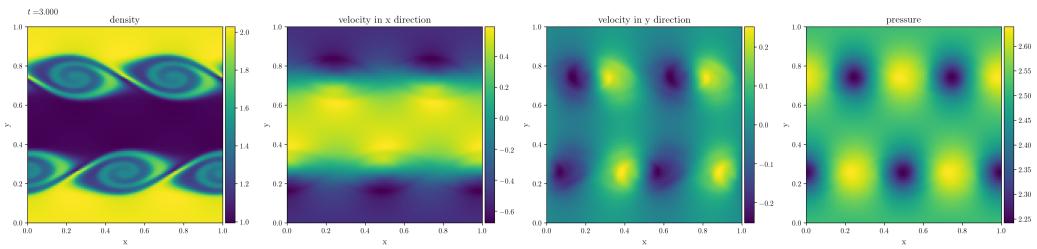


**Figure 190:** MUSCL method for (left facing) sod shock, SUPERBEE flux limiter. Obtained result.

### 5.3 Others in 2D



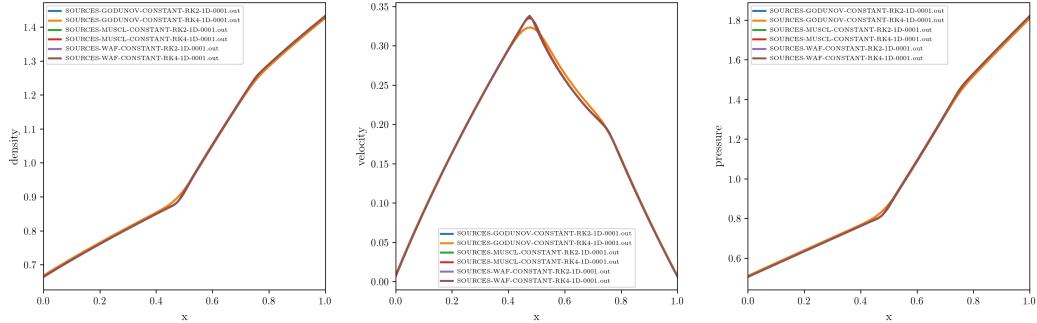
**Figure 191:** MUSCL method for Kelvin Helmholtz instability. Expected result with HLLC solver and van Leer limiter.



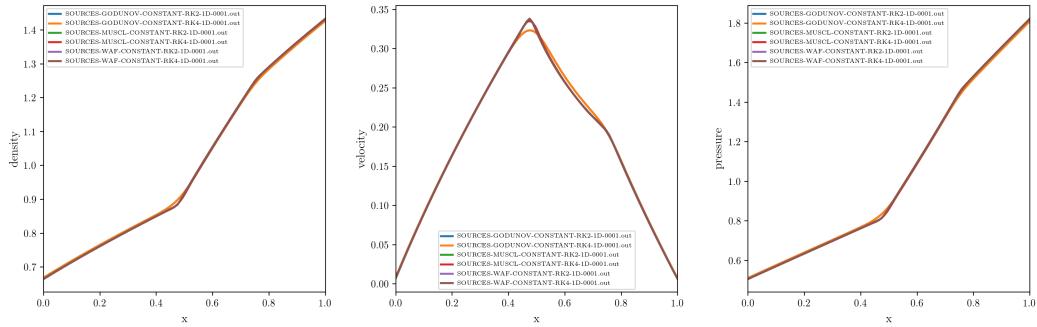
**Figure 192:** MUSCL method for Kelvin Helmholtz instability. Obtained result with HLLC solver and van Leer limiter.

## 6 Source Terms

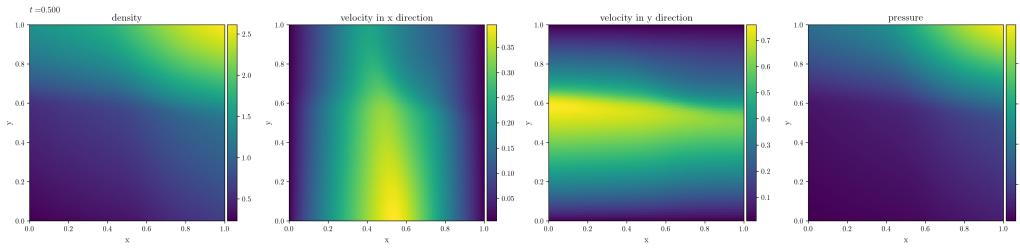
### 6.1 Constant



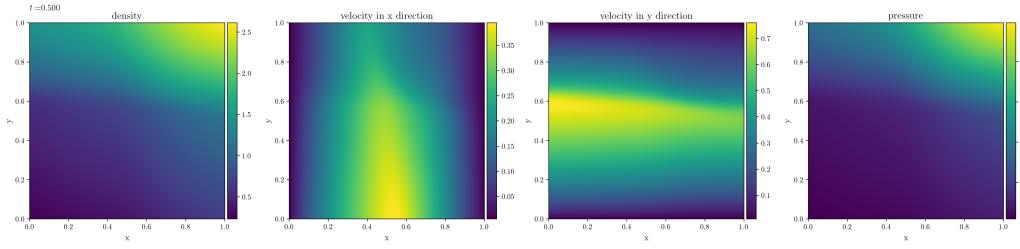
**Figure 193:** Constant source terms in 1D for various solvers, expected result



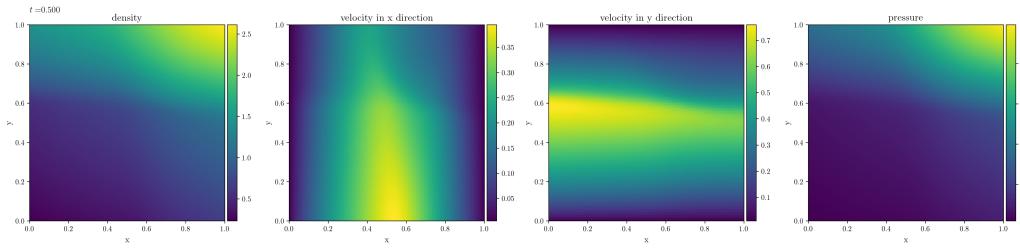
**Figure 194:** Constant source terms in 1D for various solvers, obtained result



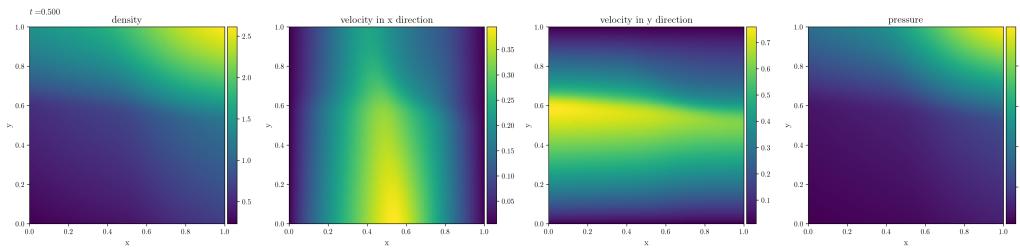
**Figure 195:** Constant source terms in 2D for GODUNOV solvers and RK2 integrator, expected result



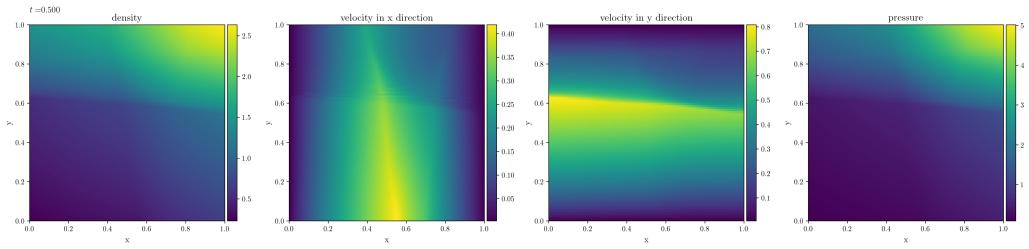
**Figure 196:** Constant source terms in 2D for GODUNOV solvers and RK2 integrator, obtained result



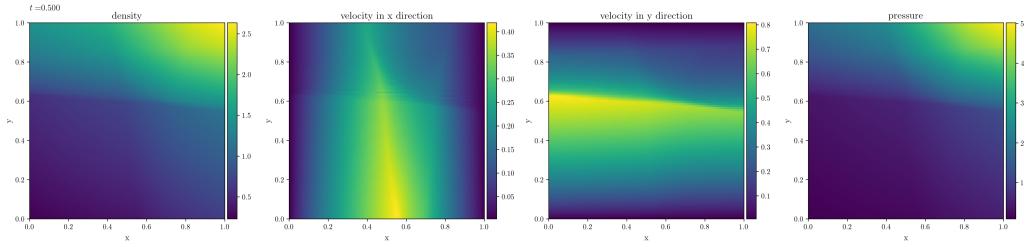
**Figure 197:** Constant source terms in 2D for GODUNOV solver and RK4 integrator, expected result



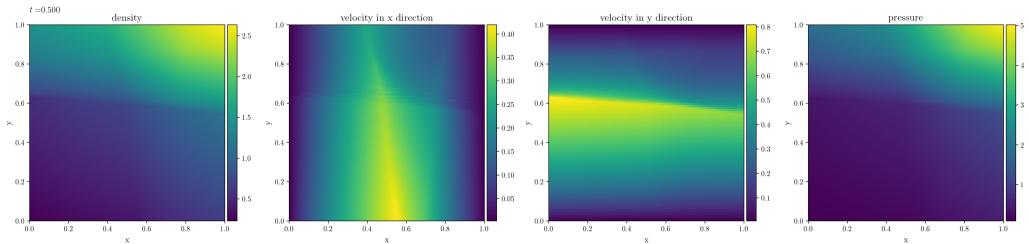
**Figure 198:** Constant source terms in 2D for GODUNOV solver and RK4 integrator, obtained result



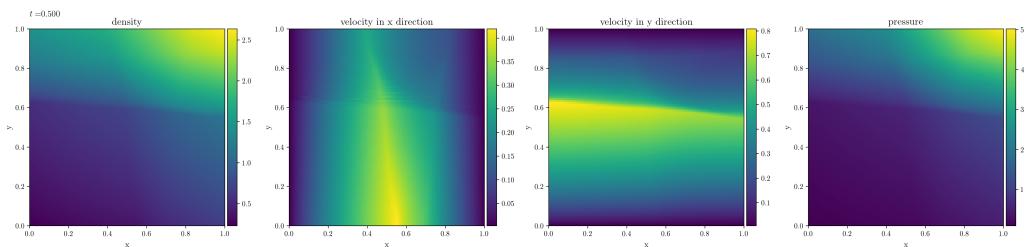
**Figure 199:** Constant source terms in 2D for WAF solver and RK2 integrator, expected result



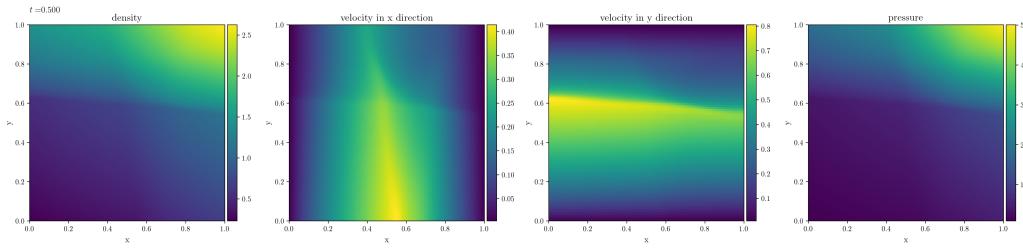
**Figure 200:** Constant source terms in 2D for WAF solver and RK2 integrator, obtained result



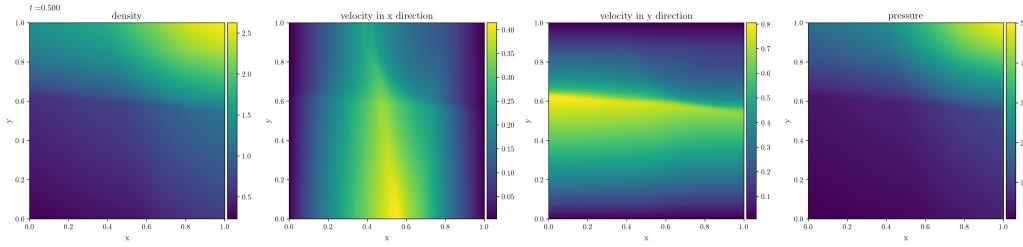
**Figure 201:** Constant source terms in 2D for WAF solver and RK4 integrator, expected result



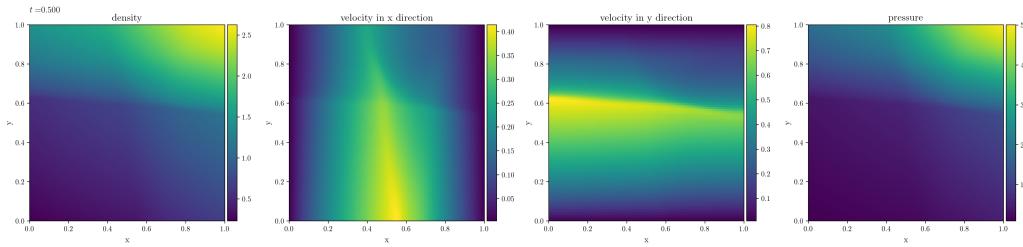
**Figure 202:** Constant source terms in 2D for WAF solver and RK4 integrator, obtained result



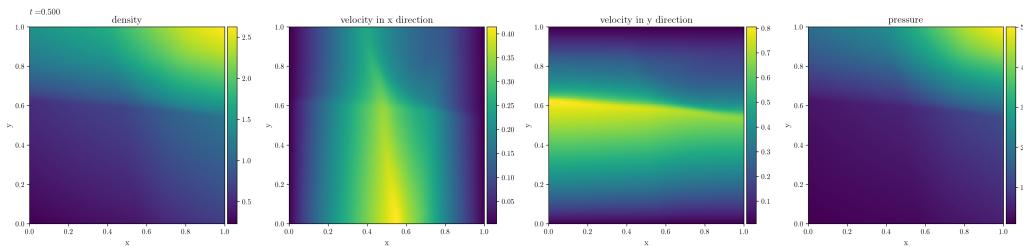
**Figure 203:** Constant source terms in 2D for MUSCL solver and RK2 integrator, expected result



**Figure 204:** Constant source terms in 2D for MUSCL solver and RK2 integrator, obtained result

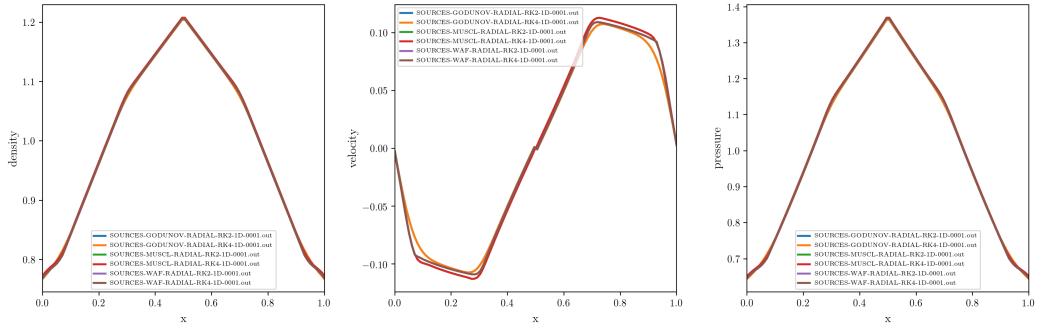


**Figure 205:** Constant source terms in 2D for MUSCL solver and RK4 integrator, expected result

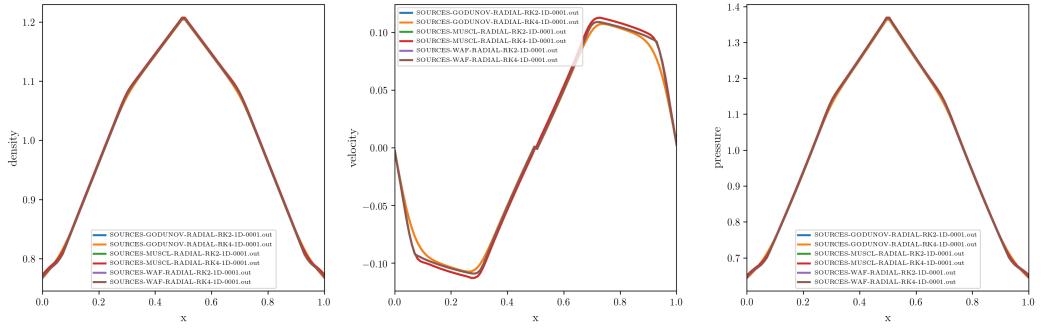


**Figure 206:** Constant source terms in 2D for MUSCL solver and RK4 integrator, obtained result

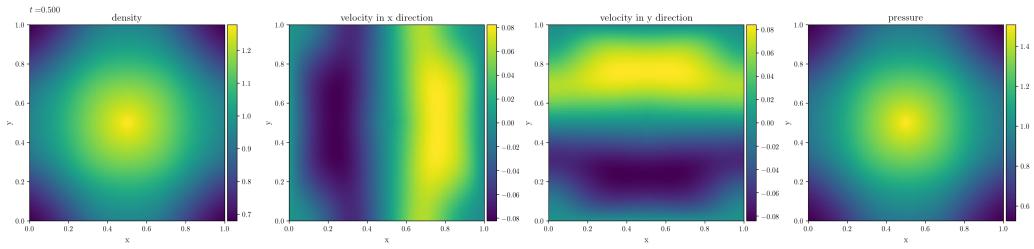
## 6.2 Radial



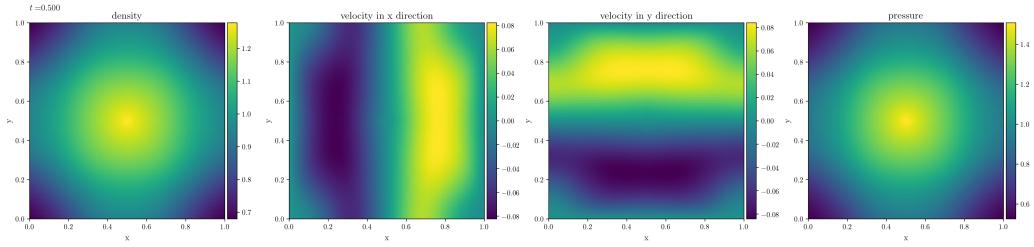
**Figure 207:** Radial source terms in 1D for various solvers, expected result



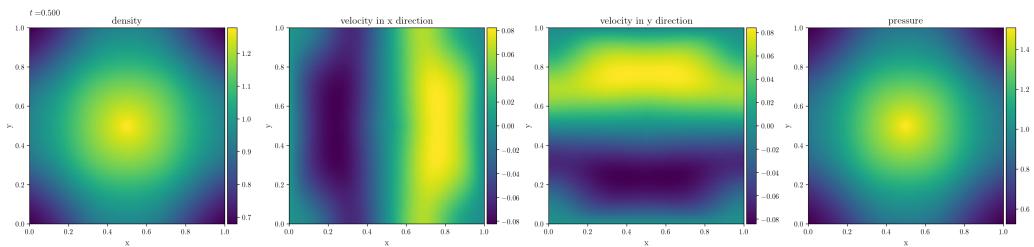
**Figure 208:** Radial source terms in 1D for various solvers, obtained result



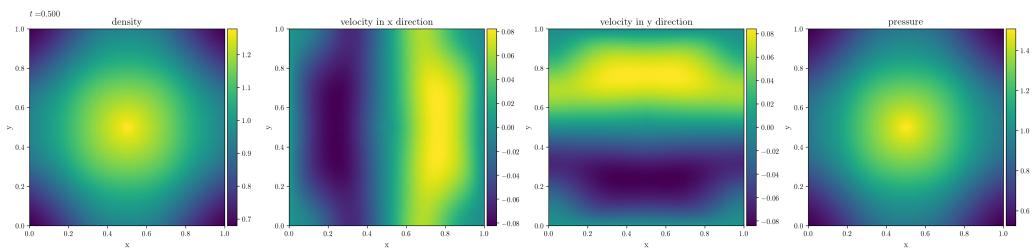
**Figure 209:** Radial source terms in 2D for GODUNOV solvers and RK2 integrator, expected result



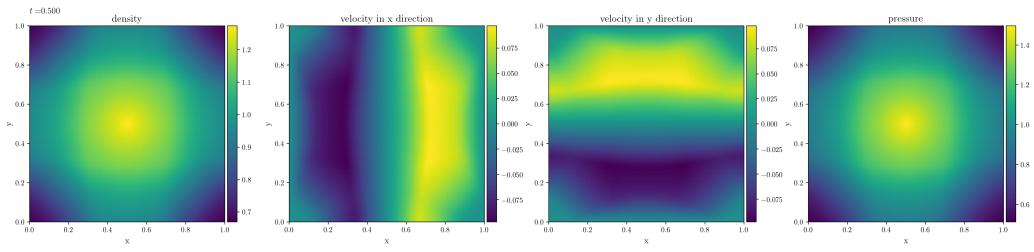
**Figure 210:** Radial source terms in 2D for GODUNOV solvers and RK2 integrator, obtained result



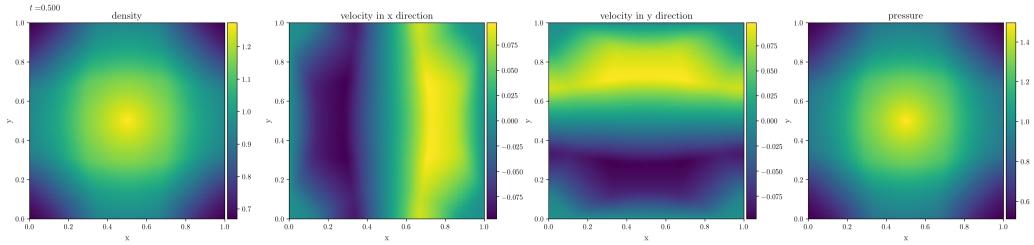
**Figure 211:** Radial source terms in 2D for GODUNOV solver and RK4 integrator, expected result



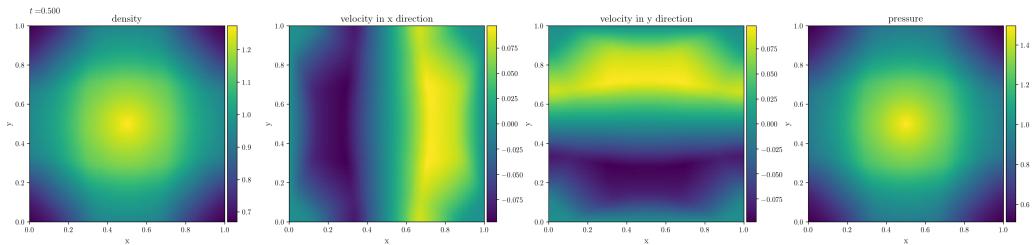
**Figure 212:** Radial source terms in 2D for GODUNOV solver and RK4 integrator, obtained result



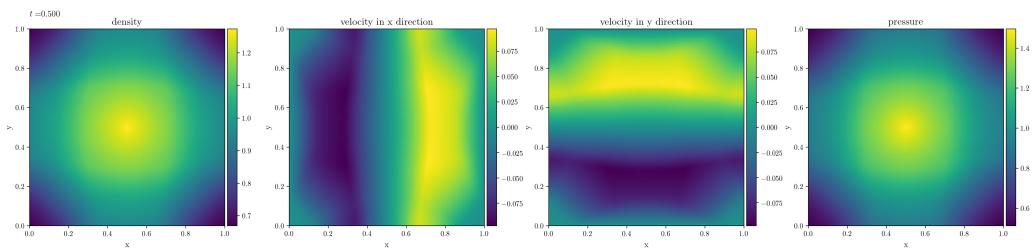
**Figure 213:** Radial source terms in 2D for WAF solver and RK2 integrator, expected result



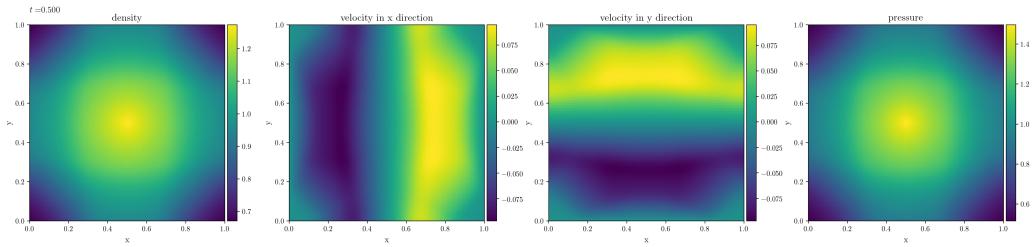
**Figure 214:** Radial source terms in 2D for WAF solver and RK2 integrator, obtained result



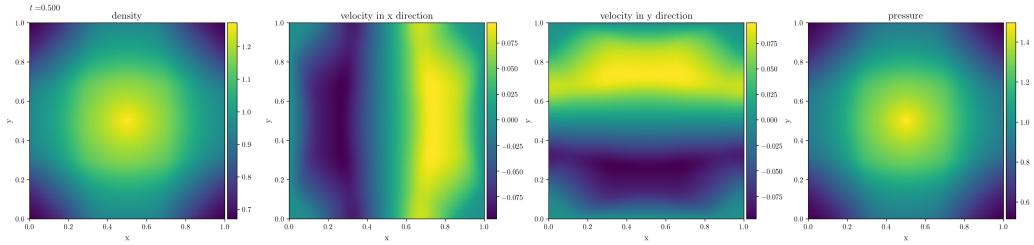
**Figure 215:** Radial source terms in 2D for WAF solver and RK4 integrator, expected result



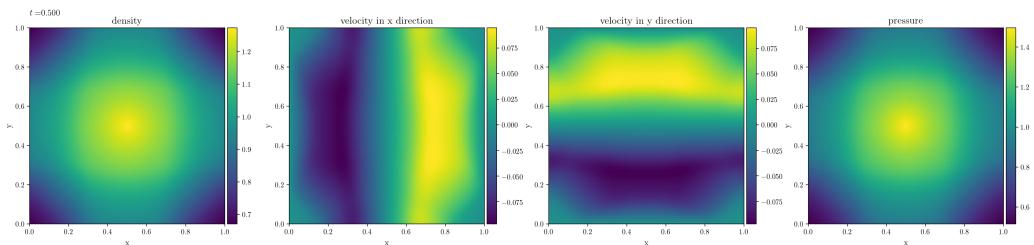
**Figure 216:** Radial source terms in 2D for WAF solver and RK4 integrator, obtained result



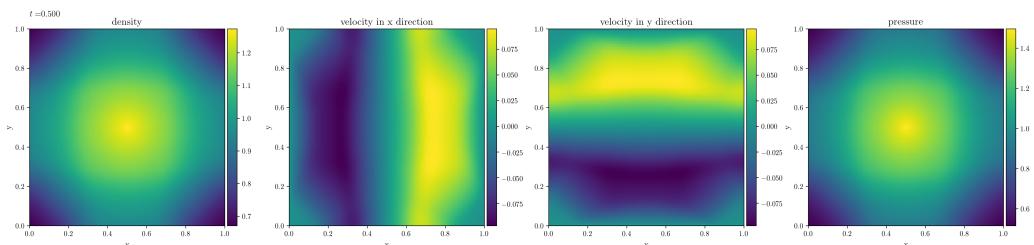
**Figure 217:** Radial source terms in 2D for MUSCL solver and RK2 integrator, expected result



**Figure 218:** Radial source terms in 2D for MUSCL solver and RK2 integrator, obtained result



**Figure 219:** Radial source terms in 2D for MUSCL solver and RK4 integrator, expected result



**Figure 220:** Radial source terms in 2D for MUSCL solver and RK4 integrator, obtained result