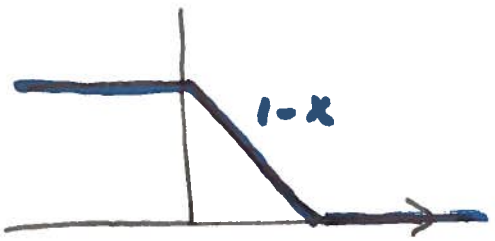
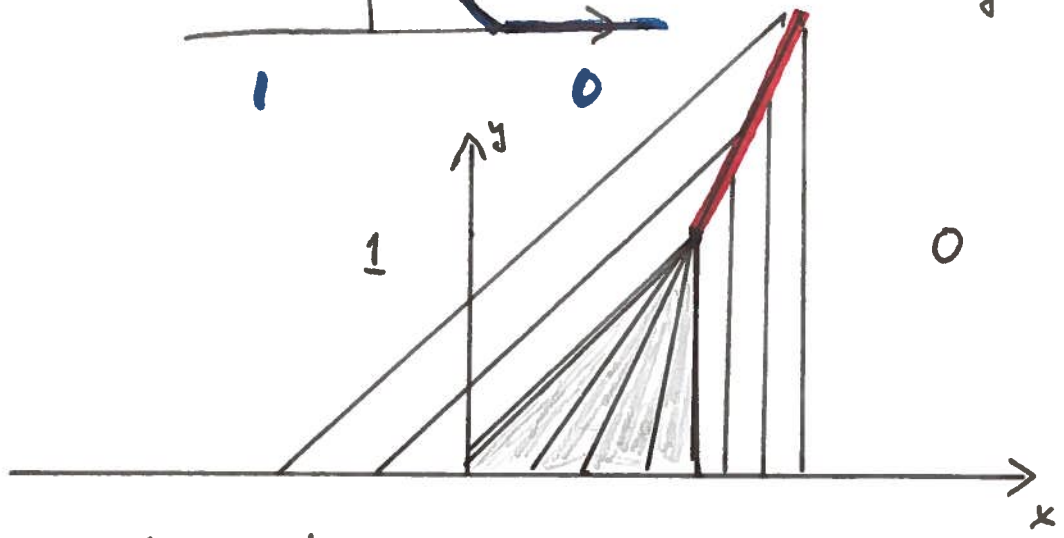
§ 1.2
2



$u u_x + u_y = 0$

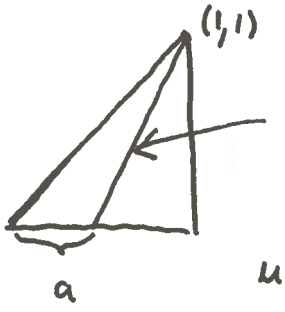


Rankine - Hugoniot

$$\frac{d\xi}{dy} = \frac{\frac{0}{2} - \frac{1}{2}}{0-1} = \frac{1}{2} \qquad \xi - 1 = \frac{1}{2}(y-1)$$

Shock

$$y = 2x - 1$$



$$y = \frac{x-a}{1-a}$$

"The solution takes the constant value C along the line with slope 1/C."

$$u\left(x, \frac{x-a}{1-a}\right) = 1-a \qquad u(x,y) = \frac{1-x}{1-y}$$

$x \le 0 \quad u = 1$

$0 \le x \le 1 \quad u(x,y) = \begin{cases} 1, & y \ge x \\ \frac{1-x}{1-y}, & y \le x \end{cases}$

$x \ge 1 \quad u = \begin{cases} 1, & y > 2x-1 \\ 0, & y < 2x-1 \end{cases}$