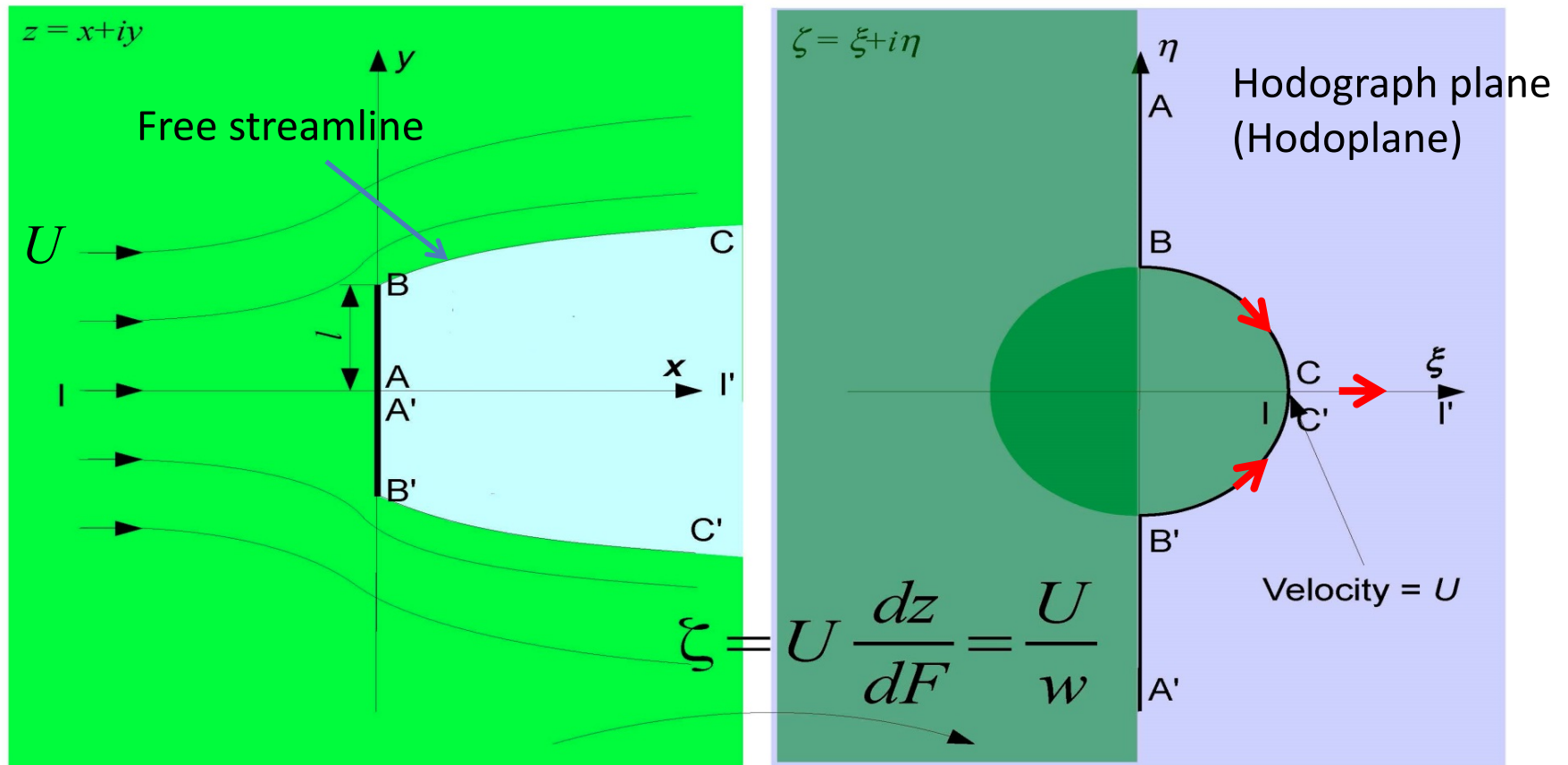
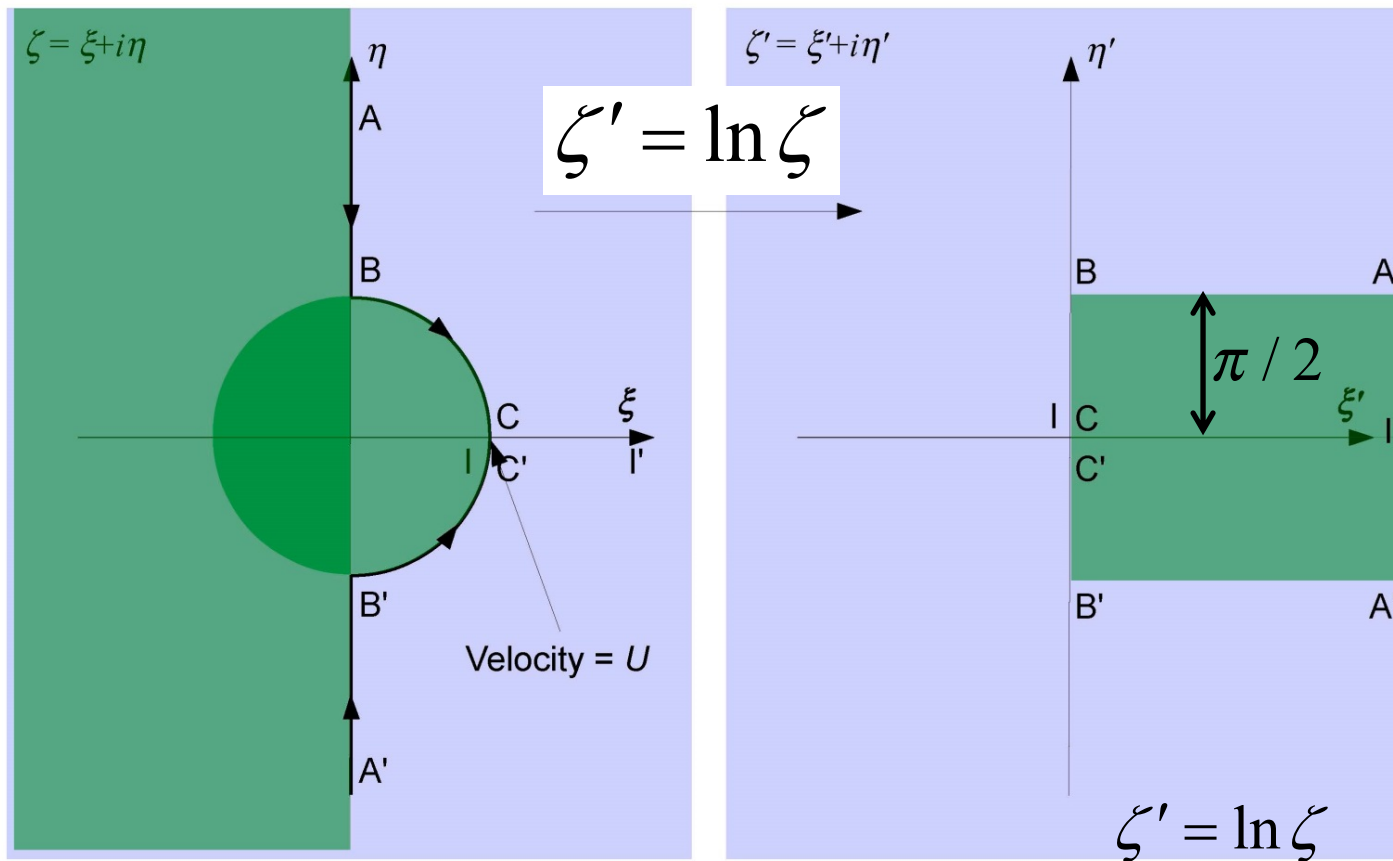


# Flow Past a Vertical Flat Plate



$$\zeta = U \frac{dz}{dF} = \frac{U}{W} = \frac{U}{u - iv} = \frac{U}{\sqrt{u^2 + v^2} e^{-i\theta}} = \frac{U}{\sqrt{u^2 + v^2}} e^{i\theta}$$

# Flow Past a Vertical Flat Plate

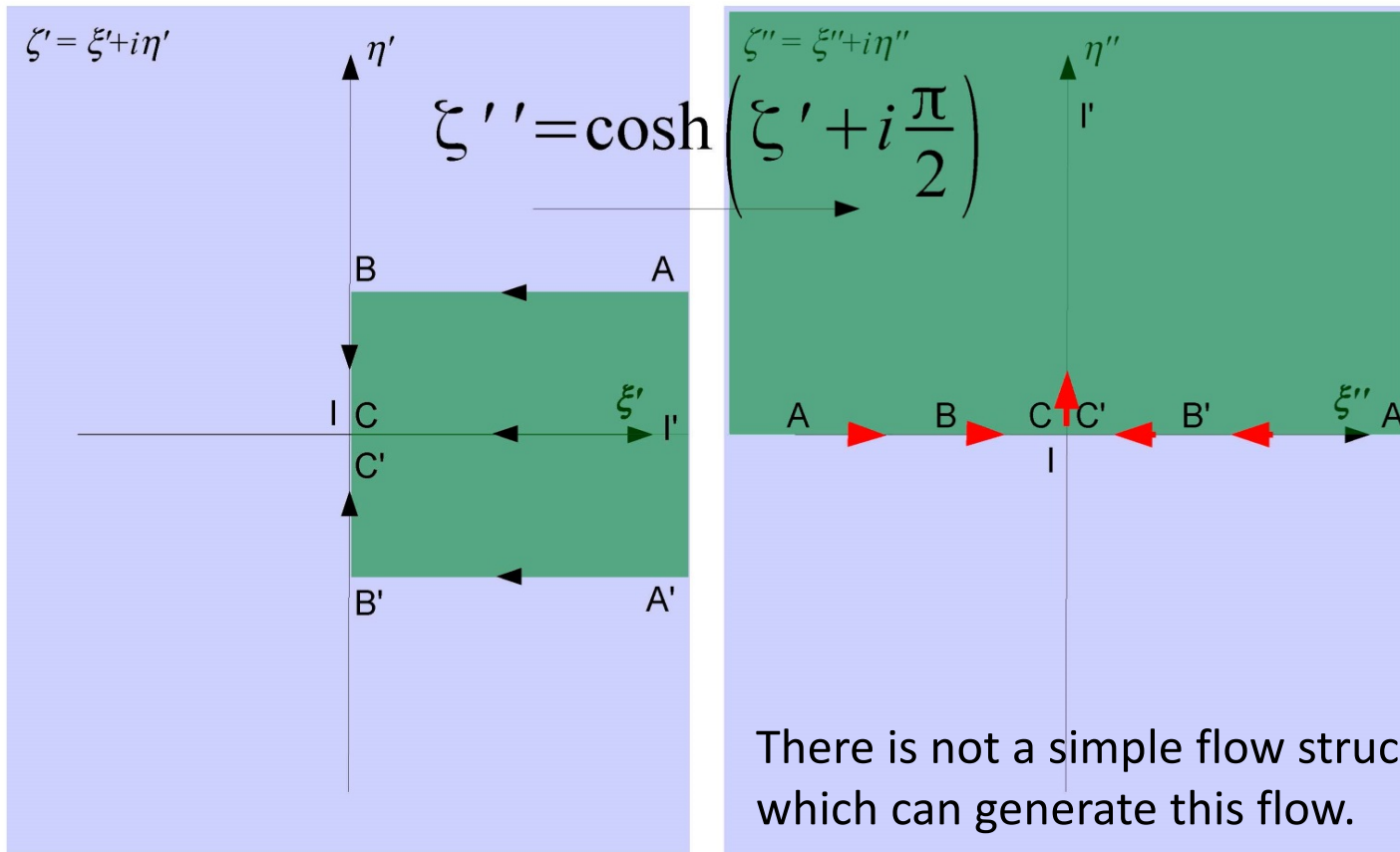


- maps the flow boundary into that of a rectangular channel

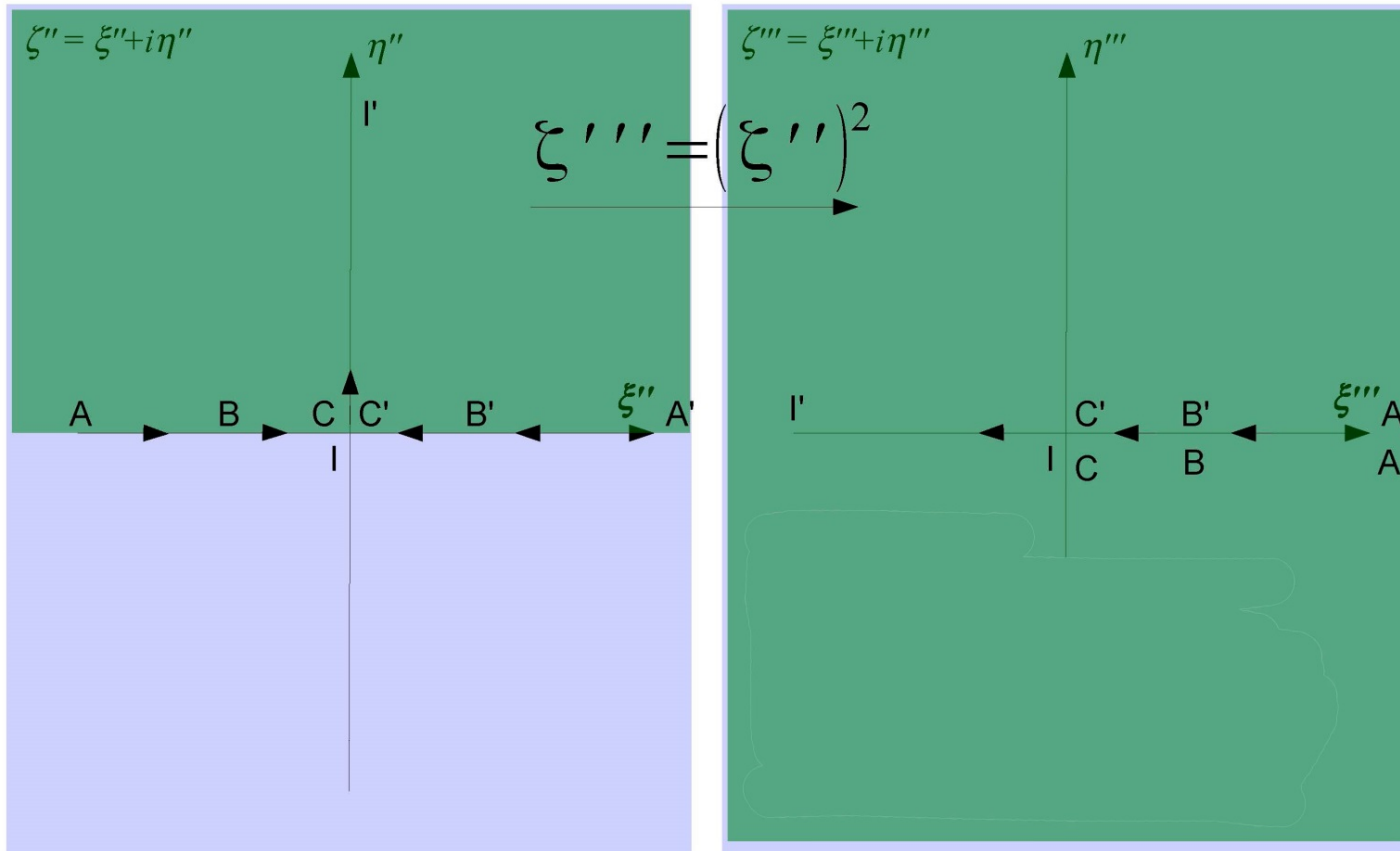
$$\zeta = R e^{i\theta} = \frac{U}{\sqrt{u^2 + v^2}} e^{i\theta}$$

$$\therefore \zeta' = \ln R + i\theta$$

# Flow Past a Vertical Flat Plate

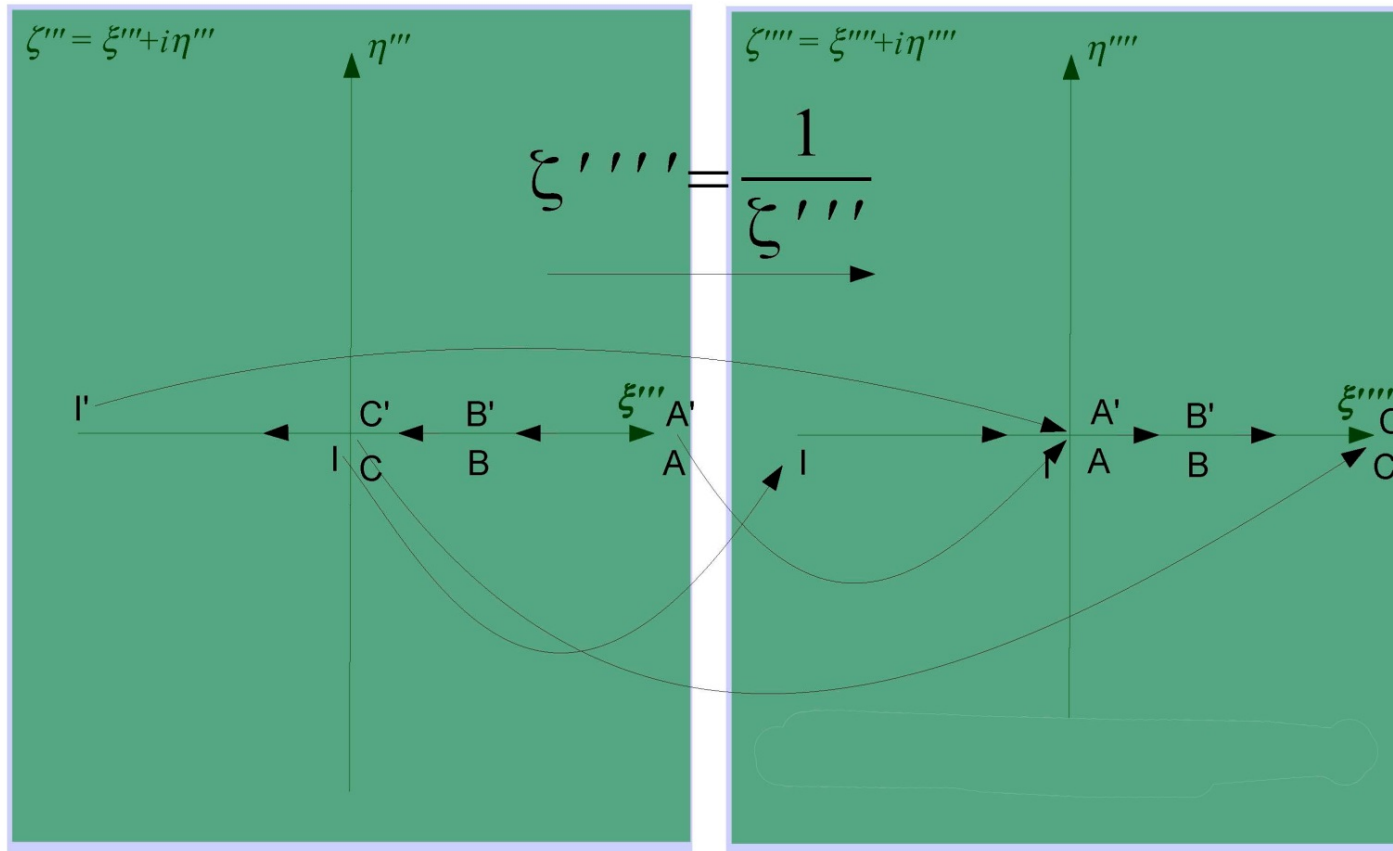


# Flow Past a Vertical Flat Plate



- This doubles the angles subtended by the principal streamlines, so that the flow in the transformed plane is unidirectional along the principal streamlines.

# Flow Past a Vertical Flat Plate



- The effect of this transformation is to map the origin to infinity

$$F(\zeta''') = K\zeta'''$$