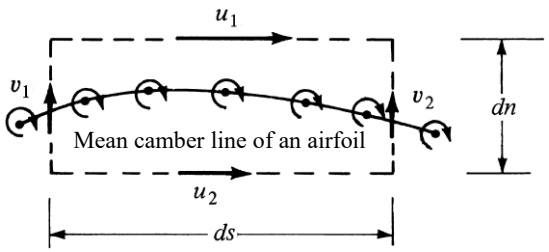
(KEY CONCEPT) [C-3-2]

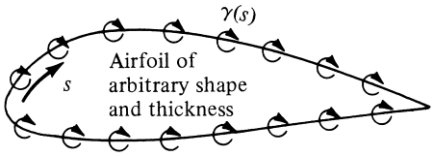
2-D Thin Airfoil Theory



$$\Gamma = u_1 - u_2$$

Kutta-Joukowski theorem:
$L' = \rho_\infty V_\infty \Gamma$

2-D Vortex Panel Method



$$\gamma = \gamma(s), \text{ thus: } d\Gamma = \gamma ds$$

$$\Gamma = \oint_{\text{L.E.}}^{\text{T.E.}} d\Gamma = \oint_{\text{L.E.}}^{\text{T.E.}} \gamma ds$$

Flow field sketch (source: J.D. Anderson "Fundamentals of Aerodynamics" 2016)