

# Convergence of the MLE

# Some more theorems about convergence

Continuous mapping theorem:

Slutsky's theorem:

# Convergence of the MLE

## Intermediate steps

Using results we have previously derived, argue that:

$$+ \quad \frac{1}{n} \ell''(\theta | \mathbf{Y}) \xrightarrow{p} -\mathcal{I}_1(\theta)$$

$$+ \quad \frac{1}{\sqrt{n}} \ell'(\theta | \mathbf{Y}) \xrightarrow{d} N(0, \mathcal{I}_1(\theta))$$

# Regularity conditions