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:

- $egin{array}{ll} lacksquare & rac{1}{n}\ell_n''(heta) \stackrel{p}{
 ightarrow} -\mathcal{I}_1(heta) \ & lacksquare & rac{1}{\sqrt{n}}\ell_n'(heta) \stackrel{d}{
 ightarrow} N(0,\mathcal{I}_1(heta)) \end{array}$

Regularity conditions