

$$\begin{array}{ccccc}
 F & \hookrightarrow & E & \twoheadrightarrow & E/F \\
 \downarrow \scriptstyle \mathcal{U}|_F & & \downarrow \scriptstyle \mathcal{U} & & \downarrow \scriptstyle \overline{\mathcal{U}} \\
 F & \hookrightarrow & E & \twoheadrightarrow & E/F
 \end{array}$$